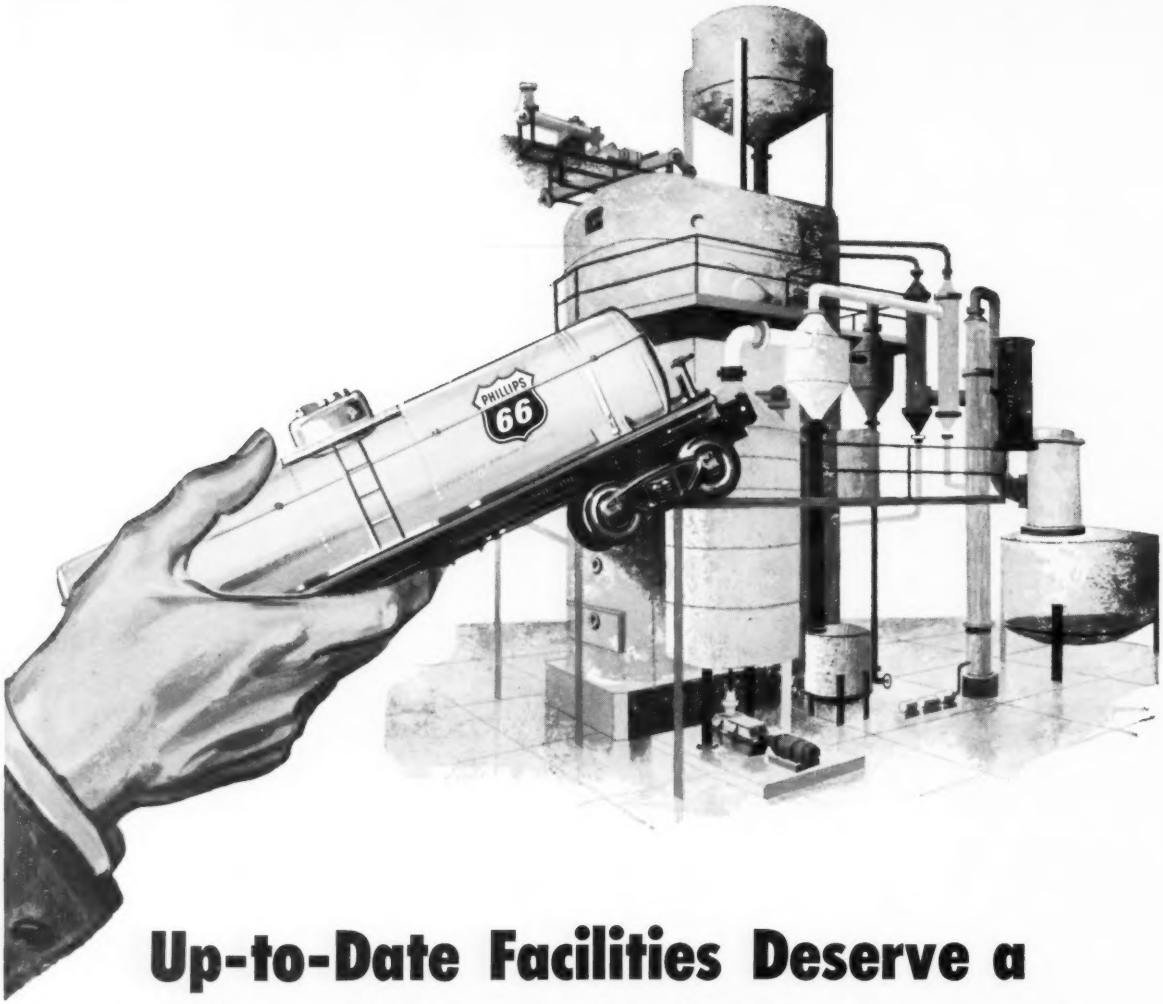
THE Soybean Digest

Vol. 21, No. 10
AUGUST 1961



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THE Soybean Digest

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Official Publication of American Soybean Association and Soybean Council of America, Inc.

HUDSON, IOWA

Vol. 21 **August, 1961** **No. 10**

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THE SOYBEAN DIGEST

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Objectives of the American Soybean Association include the bringing together of all persons interested in the production, distribution and utilization of soybeans; the collection and dissemination of the best available information relating to both the practical and scientific phases of the problems of increased yields coupled with lessened costs; the safeguarding of production against diseases and insect pests; the promotion of the development of new varieties; the encouragement of the interest of federal and state governments and experiment stations; and the rendering of all possible services to the members of the Association.

EDITOR'S DESK

. . . By GEO. M. STRAYER

THIS CALLS FOR A BIG SALES PUSH It is still too early to really know what the 1961 soybean crop will be —in terms of bushels. The July 1 acreage report makes it appear—no matter how you figure it—that we will have the biggest soybean crop in history.

The combination of acreage restrictions on other crops, a high selling price and the increase in support price on soybeans brought the big acreage.

It is going to take the combined selling talents of the American Soybean Association, the Soybean Council of America, the soybean exporters, the processors, the exporters of soybean products, and every conceivable governmental agency to dispose of this crop.

Along with the biggest crop in history, we have an increase in support price of approximately 25% over the past 2 years. Either factor would make the selling job difficult. The two combined make it doubly so.

To market the 1961 crop—to keep large quantities of soybeans out of CCC hands—is going to take the combined efforts of all these forces and some others, too.

Both dollar and P. L. 480 sales of soybean oil will have to be made at a rate far in excess of anything we have seen to date. Liquid oils, shortenings and margarines will have to be pushed into overseas feeding programs as never before. The sellers of soybean meal and soybeans will have to sell as they have never done before.

And if we do not get our job done—which I think we will—then it becomes the responsibility of government to assist in the salvage operation. The soybean industry did not ask for the $2.30 support price. It was tendered us by government. In times of high production costs a higher support price is a blessing—if it does not backfire. Only time will tell how much we stimulated production of competitive commodities in other areas of the world to take over our markets. If we find other commodities taking over our highly competitive world markets then we are the losers. If we can continue to expand sales then we have made a large net gain. We will not know the answer until the crop year is well advanced.

Millions of new potential customers now know about U. S. soybean products. Do we have the sales force and the momentum to see that those customers are supplied? If so, we will have no problems with the 1961 soybean crop.

YOU ARE NEEDED AT INDIANAPOLIS Elsewhere in this issue you will find the advance program for the 41st annual convention of the American Soybean Association. Included are program items which should interest every producer, handler, exporter, processor or broker in the soybean industry. This is the one big industrywide meeting of the year.

Make your plans now to attend these meetings. Relax in the air-conditioned comfort of the Hotel Claypool. Bring your family with you so they, too, may enjoy that Hoosier Hospitality and see the abundance of American Agriculture across the Cornbelt states.

Hotel reservations should be made directly with the Hotel Claypool. Plan to arrive on Sunday so you'll be on hand when the morning session starts. The speakers, the exhibits, the visits you'll have with people from throughout Soyland—will influence decisions you make in coming months.

We'll see you in Indianapolis—this is one meeting you cannot afford to miss! If people from Japan, Israel, France and other countries halfway around the world find the convention interesting enough to make special trips to attend it — then should it not be worthwhile for you?

SOY PROTEIN IS IDEAL FOR FOOD FOR PEACE Ever stop to figure what a ton of balanced protein costs in the form of soy flour? Compared with beefsteak? Or pork chops? Or lamb? Or even poultry? Or milk? Those of us who can afford thick juicy T-Bone steaks will continue to eat them, for we have acquired the taste and the desire. But what about the millions of people who can neither afford nor acquire animal products?

If we really mean business in our Food for Peace program then we must consider supplying proteins as well as carbohydrates and starches. What proteins? Certainly the nation cannot afford the cost of animal proteins for overseas distribution. Neither could we transport, store and distribute them, except for dried milk powder, of which there are only small supplies.

Soy protein is natural for such usage. Plentiful, economically priced, easily prepared, easily shipped and stored, easy to use—it has no real competitor. A dollar's worth of soy protein will go farther toward solving the protein malnutrition problems of the friendly nations than a dollar spent on any other commodity.

And with a 650-million-bushel crop we will have soy protein in abundance! Let's use it!

MISS SANDRA WEAVER was crowned 1960 soybean queen by Miss Beverly Coney, the 1959 soybean queen at the Soybean Festival at Jonesville, La., last fall.

Louisiana Soybean Festival in August

THE LOUISIANA Soybean Festival is being held at Jonesville, La., Aug. 17, 18, and 19. The 3-day event is an outgrowth of the Catahoula Parish Soybean Festival, held annually in the fall at Jonesville, and which has been highly successful for the past several years.

Beauties from all over Louisiana are expected to make their headquarters in Jonesville for the Festival, which will include a water ski show, a car rodeo, teen-age day, an art show, parade, and queen's ball.

Support Disappoints Ontario Producers

A SUPPORT price of $2.13 per bushel for Ontario soybeans announced July 6 was met with disappointment by producer representatives.

A. E. Jolley, chairman of the Ontario Soya-Bean Growers' Marketing Board, said the 1961 support price is totally inadequate if the government is concerned with the primary producer in Ontario.

The board submitted a brief to the Stabilization Board on May 3 requesting a support price of $2.50 a bushel.

The 1961 price is apparently based on the government's 10-year average figures.

K. A. Standing, secretary-manager of the Ontario Soya-Bean Growers' Marketing Board, stated that the U. S. support price of $2.30 on soybeans should mean at least $2.40 to Ontario producers, but the big hitch is the likelihood that distress U. S. soybeans will enter Canada at prices below the support.

The board will likely request the government to establish the U. S. support price as the fair market value for import purposes and should this request be granted, Ontario producers would receive a more adequate return.

Use Chemicals to Prevent Bean Leaf Beetle Damage

BEAN LEAF beetles inflict extensive damage to soybeans.

In spring the beetles feed on the undersides of the leaves of bean plants and literally defoliate them. The larvae feed on nodules on the roots and emerge in late July and early August as beetles. Soon the new beetles feed on the bean leaves. Occasionally they eat the soybean blossoms, reducing pod set, and occasionally the pods and stems.

Steve Moore, extension entomologist in the University of Illinois College of Agriculture, recommends DDT or toxaphene for best control of this insect. For field crops, apply 1½ pounds of either insecticide per acre soon after the beetles appear.

What makes Rosa smile?

A thing most Americans take for granted: Food. Over half of the world's population goes to bed hungry every night. But significant gains are being made almost every day.

Farmers, elevators and grain companies are in business to make a profit. Our American economy is based on this principle. But at the same time it is highly satisfying to be in a business that delivers such enormous benefits to mankind.

Country elevators play an essential role. Without them farmers would lack local outlets for grain. Farmers' costs would rise if they took on the expense of marketing. Continental would feel the pinch because without a dependable, continuous source of grain we could not deal in the tremendous volume we do today. Result? Higher costs, pricing U.S. grains out of the world market and making food here at home more expensive.

Working together, farmers, elevators and grain companies can continue to deliver the fruits of American Agriculture to the nation, to the world.

Selling or buying grain? Contact Continental! Members of all leading grain exchanges. Offices and terminal elevators in 25 cities in the U.S. and Canada. Terminal and country elevator storage over 100,000,000 bushels. Continental Grain Company, 2 Broadway, New York 4, N. Y.

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Helping American Agriculture serve the nation and the world

THE NEWS IN BRIEF

THE CROP, MARKETS AND OTHER ITEMS OF NOTE

Late News About The Crop

Good reports on the progress and condition of the 1961 soybean crop continued to come in as the Soybean Digest went to press. As of late July there were no very adverse reports. **The crop was generally excellent in Northern States, a little more spotted in the South.**

Reports were especially favorable from Illinois, Iowa, Minnesota and Ohio, and generally good in North Carolina and Maryland-Delaware. In Missouri, the condition of the crop was above average but late. Crop was reported growing well in Arkansas, but some late beans had "skippy" stands; and the crop was good to fair in Tennessee.

David G. Wing, Mechanicsburg, Ohio, writes: "I have never seen beans look better. Mostly the fields are fairly clean. All fields allowed under the corn program were planted to beans." (For an earlier, more detailed report on the crop, see page 34.)

Ohio Valley Soybean News, Henderson, Ky.: "Any time you have the factors of late planting, abnormal weather and new land put into soybeans, the yields have a way of playing tricks on the best of the estimators."

Dallas Western, Quaker Oats Co., Chicago: "If we continue to get ample moisture, there will most certainly be an explosion of crop yields. Our observation would be that **the 27.1 million acres estimated by USDA for soybeans is conservative."**

Canadian Soybean Crop

The Ontario Soya Bean Growers Marketing Board has estimated the 1961 soybean crop to be 10% higher than last year's 256,000 acres, compared to the recent official government estimate of an increase of 15% in acres. Pelee Island growers reported a 5% decrease in 1961 acreage.

A support price of $2.13 per bushel for Ontario soybeans announced in July was met with disappointment by producer representatives. A. E. Jolley, chairman of the Marketing Board, said the 1961 support price is totally inadequate if the government is concerned with the primary producer in Ontario. The board had requested a support price of $2.50 a bushel.

The Canadian soybean crush is running behind last year. In the period, January-May, the total was 6.3 million bushels, about 7% behind the same period last year.

Soybean Exports Are Up

U. S. exports of soybeans for dollars in the first three quarters of the fiscal year, July 1960-March 1961, **were up sharply from the comparable period a year ago,** U. S. Department of Agriculture reports. Dollar sales for the July-March period totaling $254 million were 23% above their total in the comparable period of 1959-60. The continued strong demand in industrialized countries and the reduced supplies available from Communist China were factors accounting for the increase. Over two-thirds of U. S. beans went to Japan, the Netherlands, West Germany and Canada. (1960-61 crop year exports Oct. 1-July 21 to date are now running about the same as a year ago.)

Total exports of soybean oil for the 9-month period were 666,172,000 pounds valued at $74.1 million; and of cottonseed oil, 267,814,000 pounds valued at $31.8 million.

Foreign Research Program

A grant, equivalent to $8,604 in Japanese yen, has been made to the Japan Shoya Research Institute in Tokyo, in support of a 30-month study to compare factory production of soy sauce made from Japanese soybeans with sauce made from U. S. beans, USDA reports. **This is the first such grant to a Japanese research institution.** Aim of the research is to increase use of U. S. soybeans in Japanese soy sauce manufacturing.

USDA also announced a grant, equivalent to $10,770 in Polish zlotys, to Gdansk Polytechnic at Gdansk, Poland, to support research on the possible role of sterols (alcohols) in development of off-flavors and odors during the processing of soybean oil. The life of the grant is 4 years.

Annual Council Meeting

The annual business meeting of the Soybean Council of America will be held at the Claypool Hotel at Indianapolis, Ind., Wednesday morning, Aug. 30, following the close of the American Soybean Association convention there the day before. All participants in the Council's program are requested to have representatives present for the meeting, where the past year's activities will be reviewed and the plans for the next several years will be discussed. Representatives from Foreign Agricultural Service, Washington, will be present.

Cargill Buys Soy Rich Products Co.

Purchase and expansion of Soy Rich Products Co., Wichita, Kans., soybean processor and livestock feed firm, has been announced by Cargill, Inc. Properties involved in the transfer, effective Sept. 1, include a solvent extraction plant in Wichita and a feed mill in Pawhuska, Okla. Cargill will add immediately a 1-million-bushel steel storage tank and will install new equipment to increase the plant's annual processing capacity to 6 million bushels from the present 1.5 million bushels. Also under consideration are plans to add a second 1-million-bushel storage tank. Present storage capacity is 1.1 million bushels.

Notes on Indianapolis Convention

There'll be a luncheon for the ladies attending the American Soybean Association convention in Indianapolis, at noon Aug. 29.

The ASA convention will be a cosmopolitan one again this year, with a number of people attending from abroad. Shizuka Hayashi, managing director of the Japanese American Soybean Institute, Tokyo, will appear on the program. Representatives of the livestock feed industry of France are among those expected, as well as men from Israel and Spain; and the usual good contingent from Canada.

Better not delay any longer in making that hotel reservation if you have not already done so, so you can attend the American Soybean Association convention at the Claypool Hotel, Indianapolis, Ind., Aug. 28 and 29, and the Soybean Council's business meeting the morning of Aug. 30.

Carryover Of 1961-Crop Soybeans

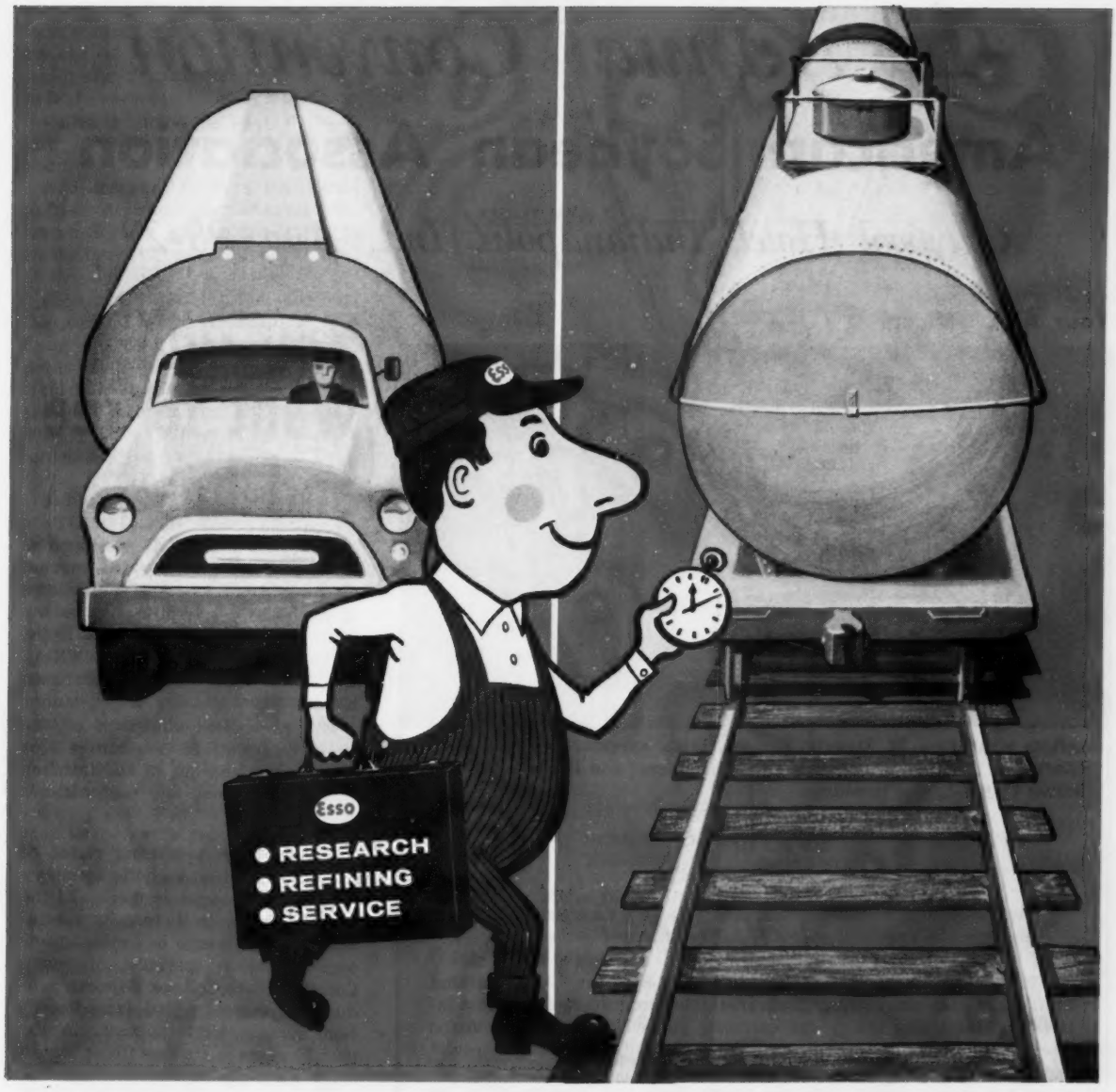
USDA is still sticking to its 5-million-bushel carryover figure on the 1960 soybean crop as of Oct. 1, since crushing and export demand during the current marketing year is expected to require all but that amount.

The general price level for most fats and oils is expected to rebound some from the weakness evidenced in June, averaging well above the summer of 1960. Important factors in the price outlook include seasonally declining supplies of vegetable oils and lard, strong domestic demand for food fats, and a pickup in exports of edible oils.

Death of Chipperfield, London

Guy Chipperfield, president of the International Association of Seed Crushers, London, died suddenly July 26, according to word received from London. Mr. Chipperfield had been chairman of the International Crusher group since 1951, and was former chairman of the British Oil & Cake Mills, Ltd., of London. Mr. Chipperfield had made numerous trips to the United States and appeared on the American Soybean Association convention program at Cincinnati, Ohio, in 1955.

Grasshoppers are serious in most areas of South Dakota. Control of cropland grasshoppers is recommended in areas of Iowa and Minnesota, according to the plant pest control division, Agricultural Research Service, USDA. Common stalk borers are reported killing soybean plants next to the fence in Warren County, Iowa, the first Iowa record of the insect in soybeans. Some cases of root rot and leaf disease are reported in Sussex County, Del.



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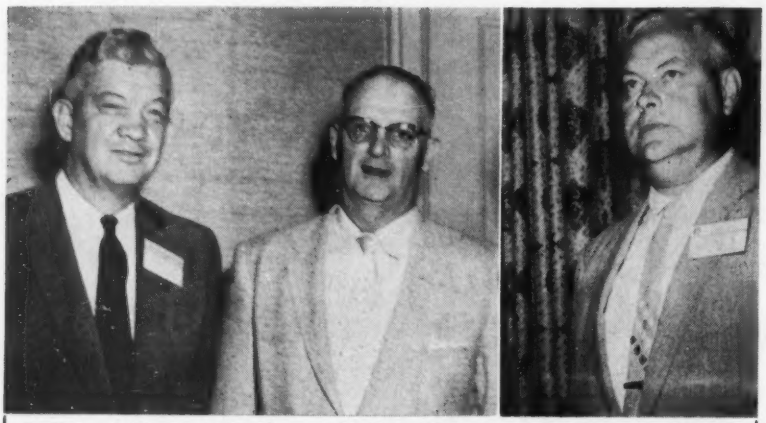
41st Annual Convention

American Soybean Association

Claypool Hotel, Indianapolis, Ind., Aug. 28-29

Your ASA Officers



Left to right, Geo. M. Strayer, Hudson, Iowa, executive vice president; Charles V. Simpson, Waterville, Minn., president; and Hubert W. Baker, Dalton City, Ill., vice president.

Greetings from Your President and His Wife

It is indeed a pleasure to extend to you an open invitation to attend our annual convention, Aug. 28 and 29. The program will be very interesting, the topics timely and certainly you will want to obtain the latest information on what the future holds for our crop. A special program has been arranged for the ladies on Tuesday. This will include a luncheon and tickets and reservations will have to be in on Monday at the registration desk for this part of the program.

We feel sure that you and your family will enjoy your stay in Indianapolis. There are playgrounds, beaches, parks, two memorial homes, museums, an observatory and planetarium in Indianapolis. The city houses the Capitol of Indiana and of course the Speedway. There are many items of interest within walking distance of the Claypool Hotel and there are bus tours available. We are also told that the shops are excellent and we are sure you can find the entertainment of your choice.

Our banquet will be held on Monday evening and everyone is, as you know, welcome to attend any or all sessions of the convention program. The board of directors of the American Soybean Association and their wives will be pleased to be your hosts and hostesses.

Mr. and Mrs. Chas. V. Simpson.

Get your room reservations in!
Claypool Hotel, Indianapolis, Ind.

You will want to see and hear:

COMMODITY checkoff programs as a method of financing the market promotion for farm products will be discussed by a veteran battler on the farm front. He is Clifford R. Hope, president of Great Plains Wheat, Inc., and former Congressman from Kansas.

Mr. Hope was chairman of the House agriculture committee for many years and one of the farmer's chief spokesmen in the nation's capital.

* * * *

The soybean producing states of the East Coast, one of the country's areas of most rapid expansion of the soybean crop, will receive special attention by George E. Spain, agronomy extension specialist of North Carolina State College. Soybean production has quadrupled, from 10 million bushels to 40 million, in the past 10 years in six East Coast States.

* * * *

Soybeans in world markets—where 40% of the crop is now going through sale of the soybean and its products —will be given a big play again this year. Walter Klein, Bunge Corp., will speak on the European Common Market. Joseph W. Barr, assistant to the U. S. Secretary of the Treasury, will discuss U. S. soybeans in relation to trade balances.

And Walter M. Scott, Agricultural Research Service, will discuss soybean research under P. L. 480.

Shizuka Hayashi, managing director of the Japanese American Soybean Institute, will report on the ASA export program in Japan. And Howard L. Roach, SBCA president, will bring us up-to-date on the Soybean Council's export market activities.

* * * *

With emergence of phytophthora

root rot and the soybean cyst nematode, control of soybean diseases has become of major concern, and the major effort is to develop disease resistant varieties. John Dunleavy, Iowa State University plant pathologist, is well equipped to tell the story.

And Joseph F. Spears, plant pest control division, Agricultural Research Service, will return to report on the latest developments in control of the nematode.

From the U. S. Regional Soybean Laboratory, where the national soybean breeding program centers, Robert W. Howell will make physiological comparisons between soybeans and corn. The Regional Lab usually has a representative on ASA convention programs.

* * * *

A report from the National Soybean Crop Improvement Council will be brought by Ward Calland, an oldtimer with our group, who became managing director of the Council at its founding.

* * * *

USDA's Northern Regional Research Laboratory has presented an annual report on its soybean research, both in industrial and food uses, at ASA conventions since early in the history of both the Laboratory and ASA. John C. Cowan, well known on our programs, returns this year to make the report.

* * * *

The price forecast for 1961-crop soybeans will be offered this year, for the third year running, by farm economist T. A. Hieronymus of the University of Illinois.

Convention Committees

Following are the American Soybean Association committees which will function during the ASA convention:

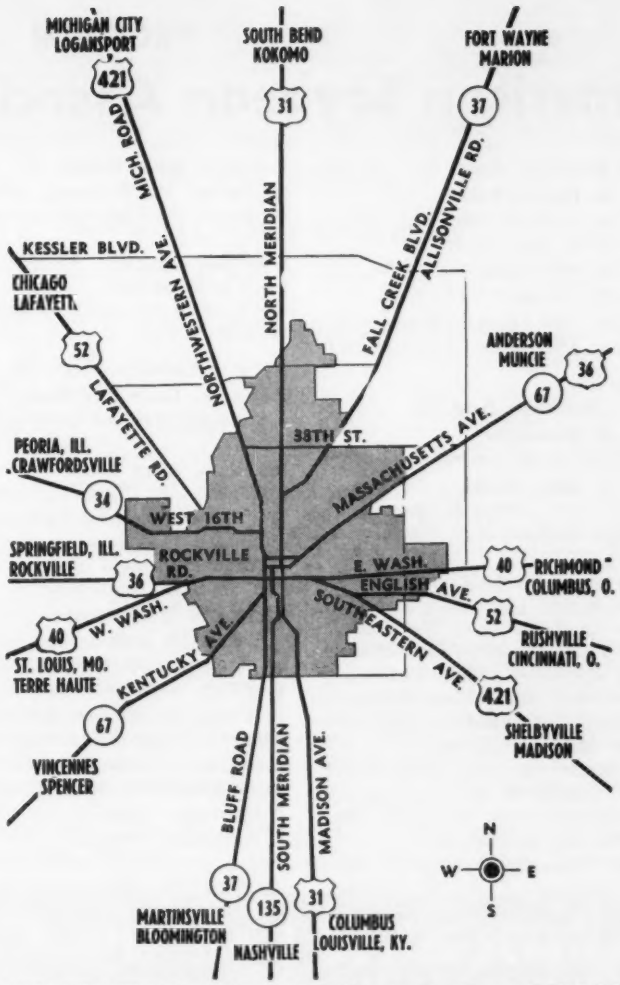
Executive. Charles V. Simpson, Waterville, Minn., chairman; Hubert Baker, Dalton City, Ill.; Geo. M. Strayer, Hudson, Iowa; Harry Gatton, Jr., Rumsey, Ky.; Carle Simcox, Assumption, Ill.

Convention. Chester B. Biddle, Remington, Ind., chairman; Richard Smith, Tilbury, Ont.; Glen Myers, Memphis, Mo.; Gatton.

Finance. John Sawyer, London, Ohio, chairman; Jake Hartz, Jr., Stuttgart, Ark.; Myers.

Nominating. David G. Wing, Mechanicsburg, Ohio, chairman; Howard L. Roach, Plainfield, Iowa; Hays Sullivan, Burdette, Ark.; O. H. Acom, Wardell, Mo.

Awards. Baker, chairman; John W. Evans, Montevideo, Minn.; Simcox.



MAIN HIGHWAYS leading into Indianapolis. Claypool Hotel is very accessible, being due west of where Highway 40 enters the city, and due south of Highway 31. Interstate 74 is open to traffic and feeds into the city from the southeast. Segments of other interstate highways are open and may be used over part of your route.

Legislative. Evans, chairman; Myers; Simpson.

By-Laws Study. Evans, chairman; Sullivan; Joe W. Hammer, Des Moines, Iowa.

Resolutions. Hartz, chairman; Biddle; John Butterfield, Pana, Ill.; Smith; Wing; Hammer; Acom; Ersel Walley, Fort Wayne, Ind.; Simcox.

Market Development. Walley, chairman; Butterfield; Wing; Sawyer; Biddle.

Indianapolis Features

INDIANAPOLIS is the largest state capital city in the United States—population 615,000. Close to the center of population of the United States and the geographic center of the soybean belt, Indianapolis has over 1,100 manufacturing plants.

The **Indianapolis Motor Speedway** is site of the 500 Mile Classic, which has been run every year since 1911, except during the two world wars. Some of the greatest auto racers in history have competed there.

Last home of **James Whitcomb Riley,** the late famed Hoosier poet, on Lockerbie Street, is maintained as a shrine and open to the public. The James Whitcomb Riley Public Library is said to be the most nearly perfect example of pure Greek architecture in the United States. Also of historic interest is the home of Benjamin Harrison.

Claypool Hotel, your convention hotel, has ample facilities to accommodate up to 1,000 people. The hotel is all air conditioned and will provide handsomely for your comfort and convenience. The Claypool is close to the Indiana State House and only a few blocks from the Union Railway Terminal.

PROGRAM

American Soybean Association Convention

Sunday, Aug. 27

2:00 p. m. Empire Room

Meeting, board of directors, American Soybean Association.

4:00 p. m. Mezzanine

Registration desk open.

7:00 p. m. Ben Franklin Room

Dinner, ASA board members and wives.

Monday, Aug. 28

8:00 a. m. Mezzanine

Registration desk open.

9:30 a. m. Riley Room

Charles V. Simpson, president, American Soybean Association, presiding.

Address of welcome. Speaker to be announced.

"The Soybean Cyst Nematode," Joseph F. Spears, chief staff officer, control operations, Plant Pest Control Division, Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C.

"Soybeans in the East Coast States," George E. Spain, agronomy extension specialist, North Carolina State College, Raleigh, N. C.

"New Research Findings on Soybean Production," J. W. Cailand, managing director, National Soybean Crop Improvement Council, Decatur, Ind.

"Recent Progress in Soybean Disease Research," John M. Dunleavy, USDA plant pathologist, Iowa State University, Ames, Iowa.

12:00 noon

Lunch.

1:30 p. m. Riley Room

Hubert Baker, vice president, American Soybean Association, presiding.

"Soybeans and Their Importance to our International Balance of Payments," Joseph W. Barr, assistant to the secretary, Department of Treasury, Washington, D. C.

"Some Physiological Comparisons of Soybeans and Corn," Robert W. Howell, USDA plant physiologist, U. S. Regional Soybean Laboratory, Urbana, Ill.

"How Far Can We Go in Increasing Oil and Protein Content of Soybeans?" speaker to be announced.

"Progress in Research at Northern Regional Research Laboratory," John Cowan, chief, Oilseed Crops Laboratory, Northern Utilization Research and Development Division, Peoria, Ill.

6:00 p. m.

Reception

7:00 p. m. Riley Room

Charles V. Simpson, president, American Soybean Association, presiding.

Annual banquet, American Soybean Association.

Awarding of honorary life memberships.

Tuesday, Aug. 29

9:30 a. m. Louis XIV Room

Brunch, wives of board of directors.

9:00 a. m. Riley Room

Charles V. Simpson, president, American Soybean Association, presiding.

Annual business meeting, American Soybean Association.

10:30 a. m. Riley Room

Chester B. Biddle, member, board of directors, American Soybean Association, presiding.

"Promoting Markets for U. S. Soybeans in Japan," Shizuka Hayashi, managing director, Japanese American Soybean Institute, Tokyo, Japan.

"Soybean Council of America Promotional Progress," Howard L. Roach, president, Soybean Council of America, Inc., Waterloo, Iowa.

"Current Status of Soybean Research Under P. L. 480," Walter M. Scott, assistant director, Foreign Research and Technical Progrdams Division, Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C.

12:00 noon

Ladies luncheon.

Meeting, board of directors, American Soybean Association.

1:30 p. m. Riley Room

Ersel Walley, member, board of directors, American Soybean Association, presiding.

"The Checkoff Program for Promotional Financing," Clifford R. Hope, president, Great Plains Wheat, Inc., Garden City, Kans.

"The European Common Market and Its Effect on U. S. Agriculture," Walter C. Klein, president, Bunge Corp., New York, N. Y.

"Foreign Agricultural Service Interests in Soybean Exports," speaker to be announced.

"What Will We Get for 1961-Crop Soybeans?" T. A. Hieronymus, professor, Agricultural Marketing, University of Illinois, Urbana, Ill.

4:30 p. m.

Meeting, board of directors, American Soybean Association.

Wednesday, Aug. 30

9:00 a. m.

Annual business meeting, Soybean Council of America, Inc.

The Convention Exhibitors

DON'T ATTEND the American Soybean Association convention at the Claypool without spending some time with the exhibitors there.

Firms serving the soybean industry in many different capacities are going to considerable effort and expense to contact you while at the convention and a visit to the various exhibits will be well worth your while.

You will find the exhibits a good place to relax—and to pick up the latest information on equipment and services. The men in charge of the booths will be friendly and anxious to meet you and help you with your problems.

All booths will be on the mezzanine floor and easily accessible to the meeting room.

There is still some exhibit space available. Frims wishing a booth should contact immediately:

Geo. McCulley, Business Manager, American Soybean Association, Hudson, Iowa

Here are the firms that had reserved exhibit space at press time, with the booth number, the products or services to be shown and the men in charge, when the information is available:

1—Urbana Laboratories.

To be shown: Urbana Culture humus and jelly type soybean inoculants.

To attend: L. E. Manning.

2—Soybean Digest.

To be shown: Map of world pinpointing the 54 countries where the Soybean Digest is circulated.

To attend: David B. Bramson, Art Hutchison and David Hanley.

4—Kennedy Car Liner & Bag Co., Inc.

To be shown: Multiwall Paper Bags, Car Liners, Pallet Covers and Polyethylene Bags.

To attend: O. W. Fisher, Harold McKee, and Gus Lorenz.

6—Davenport Machine & Foundry Co.

To be shown: A considerable num-

ber of enlarged photographs of Davenport Conditioning, Drying, and Cooling Equipment.

To attend: L. W. Follett and Harry I. Carlson.

7—Columbian Steel Tank Co.

To be shown: Columbian Rigid Frame Buildings, Bolted Steel Grain Storage Tanks, and Bulk Feed Equipment.

To attend: R. G. Parsons.

8—Huntley Manufacturing Co.

To be shown: Information on all Monitor Grain Cleaning Equipment, with emphasis on the improved Monitor "Q" type High-Capacity Soybean Cleaner.

To attend: Lester Johnson, Oscar Olsen, and R. J. Buchholtz.

11—Simon-Carter Co.

To be shown: Carter Precision Grader Tester as well as several shells to demonstrate the sizing that can be done using slotted and round hole perforations.

To attend: George Durkot.

12—The Buhler Corp.

To be shown: Buhler Flaking Mill, model MWO, and Buhler Separator for Cleaning Products and Removing Hulls, model DMTU.

To attend: Willi Zogg, Alfons Ittensohn, Fritz Schiess, and Mark Rutimeyer.

13, 14—Soybean Council of America, Inc.

To be shown: The Council's activities around the world to develop markets for soybeans and soybean products.

To attend: R. W. Fischer, Carl Urban, and Howard L. Roach.

15—Seedburo Equipment Co.

To be shown: Steinlite Oil and Fat Tester, model 300-LOS; Steinlite Moisture Tester, model 500-RC; Spiral Probe; Soybean Sieves; and No. 34 Seedburo Boerner Sampler.

To attend: Rex E. Yocum.

19—Merrill Lynch, Pierce, Fenner & Smith, Inc.

To be shown: Chicago Board of Trade ticker, Merrill Lynch newswire supplying current stock and market information, and a display booth posting price ranges and comparisons for Chicago soybeans, soybean oil and soybean meal, and with a wide range of Merrill Lynch literature.

To attend: William J. Checkly and William L. Allen.

20—A. T. Ferrell & Co.

To be shown: a working model of one of the more popular, large-capacity soybean cleaners.

To attend: Ronald Banton and James Henderson.

21—Burrows Equipment Co.

To be shown: Burrows Moisture Recorder, Burrows Vitascope, and information on the Elba Winchdozer.

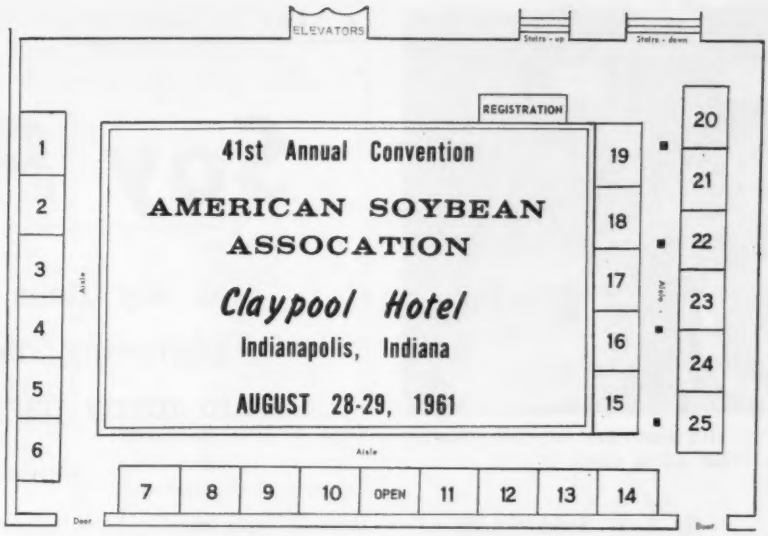
To attend: Charles P. Polstra.

23—Prater Pulverizer Co.

24—V. D. Anderson Co.

To be shown: Catalogs and pictures of the equipment which the firm manufactures for the soybean industry.

To attend: D. R. Eastman, L. W. Metzger, and D. B. Lee.



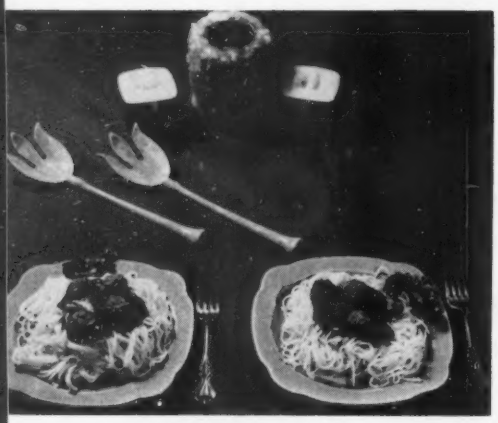
Ballroom - ASA meetings

FLOOR diagram shows exhibit booths and meeting room.

25—Aeroglide Corp.

To be shown: Photographs of installations, typical engineering layouts, case histories on drying soybeans and similar material; also the Aeroglide Grain Bank Series Drier for use at smaller installations.

To attend: James F. Kelly, Gene Bohlke, Hunt Moore, Dick Rankin, Parke Thomas, and Ed Edmundson.



SOY PROTEIN is gaining rapidly for use in foods.

A SPECIAL REPORT

Soy Protein

as soy flour and grits—for improving dietary standards in many parts of the world

By J. W. HAYWARD
Director of Nutrition, Soybean Council of America, Inc.

and G. M. DISER
Research Department, Archer-Daniels-Midland Co.

SOYBEANS AND PRODUCTS derived from them have served as the chief source of protein in the diet of millions of oriental people for nearly 5,000 years. Various other oilseed products have been developed over the centuries for use as food in different parts of the world. However, because they are adapted to a wide range of soil and climatic conditions and can be produced economically in many areas, soybeans continue to be of special interest in the field of worldwide nutrition.

In the Orient and many other parts of the Far East, tofu and such foods made from fermented soybeans as miso, natto and tempeh are extremely popular. These foods are all rather uncommon among occidental races. They are not known at all to us in the United States except on an experimental basis. Our edible soya for protein is available for the most part in the form of flour, grits and concentrated protein. However, these forms of edible soya are practically unknown in the countries of the Far East.

Soya products, especially flour, grits and concentrated protein, are gaining rapidly in importance among occidental peoples everywhere as a source of high quality protein for use in foods. There are good reasons to believe that these products will find a fair to good market in the Orient eventually. The same can be said for the typical oriental soy foods finding acceptance in "western-style" countries. In fact, there are indications that some of these foods, i.e. tofu and tempeh, might become quite popular in a rather short time here in the United States.

One product, made from soybeans that is common to both areas of the world, is soy sauce. It is understood that the soy sauce of the Orient is a product of natural fermentation and is generally quite superior to the average soy sauce made in the United States.

Soy flour and soy grits were first prepared commercially in the United States in the early 1930's. During the interval since that time these products have become the most widely used of the oilseed materials developed for food purposes.

Concentrated soy protein has been produced in the United States, on at least a limited scale, for more than 25 years. However, this protein has been, for the most part, of the industrial type. Edible grade soy protein is a more recent venture here. It is becoming quite popular in several specialty foods and the future looks bright for a more extended and diversified use of concentrated soy protein in the United States. Two forms of soy protein are presently available. One form, "soy protein concentrate," is prepared from high quality, sound, clean, dehulled soybeans by removing most of the soluble constituents other than protein and a preponderance of the oil. This product contains at least 70% of protein on a dry basis. The other form of concentrated soy protein, "isolated soy protein," is prepared as a proteinaceous fraction by removing the greater share of the non-protein components from high quality, sound, clean, dehulled soybeans. This soya product contains not less than 90% protein on a dry basis.

While many of the nutritional properties of the soybean have been known throughout the centuries, it has only been during the last 15 or 20 years that research has been able to provide a scientific explanation for its many desirable attributes.

Definition

Soy flour has been defined as the screened, graded product obtained after expelling or extracting most of the oil from selected, sound, clean, dehulled soybeans (23). However, full-fat soy flour is not subjected to expelling or extraction and contains all of the oil originally present in the soybeans.

Generally speaking, all soya products ground finely enough to pass through a 100-mesh or smaller screen are referred to as "flour." Soy flours are manufactured in various granulations as desired for specific uses. Soy flours and soy grits are generally used interchangeably, depending on the texture desired in the finished product. Soy grits usually conform to the following range of granulations in terms of majority percent through respective U. S. standard screens:

Coarse	#10 to #20
Medium	#20 to #40
Fine	#60 to #80

The following general types of soy flour are presently available in the United States to meet specific needs (23):

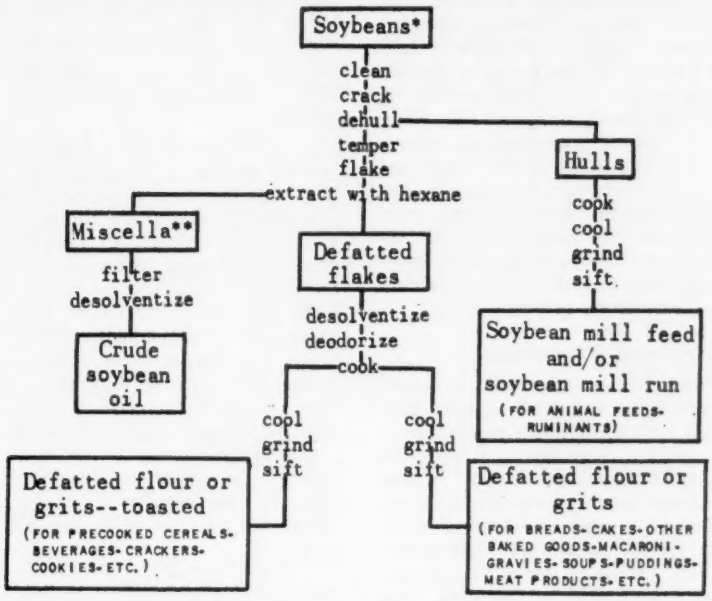
1—*Defatted soy flour* is produced by the nearly complete removal of the oil from soybeans through the use of hexane. This soy flour or grits usually contains 1% or less of fat (ether extract).

2—*Low-fat soy flour* is produced either as a result of partial removal of the oil from soybeans or by adding soybean oil to defatted soy flour at a specified level, usually in the range of 5% to 6%.

3—*High-fat soy flour* is produced by adding soybean oil to defatted soy flour at a specified level, usually in the range of 15%.

FIGURE 1. PROCESSING OF SOYBEANS

Production of defatted, dehulled soya products--flour or grits--for edible uses



*The soybeans used for processing are selected, sound, clean beans that have been properly stored. **Mixture of crude soybean oil and hexane.

4—*Full-fat soy flour* contains all of the oil originally present in the raw soybeans, usually from 18% to 22%.

Production

The steps that are followed in the production of defatted soy flour and grits are depicted in the flow chart in figure 1. The processing consists essentially of cleaning, cracking, dehulling, tempering and flaking the soybeans that have been selected and properly stored prior to their being used in the preparation of edible products.

The flakes are then extracted with hexane to remove the oil and the defatted flakes passed through the desolventizing and deodorizing equipment to remove the solvent as well as any undesirable aroma and flavors which are largely volatile.

Deodorization is sometimes referred to as "debittering." The flakes are usually heated in atmospheric cookers according to the use intended for the finished product (flour or grits) and routed to the coolers, grinders and sifters for reduction into grits or flour.

Full-fat soy flour is not processed to remove any of the oil or fat contained in the dehulled soybeans. Except for this, the remaining operations are practically the same as for the defatted flour or grits as shown in figure 1.

A low-fat soy flour may be produced by mechanical pressing (usually by expeller or screw press) to reduce the oil or fat content to 4% to 6%. Except for this operation, all other steps in the production of this type of flour are much the same as those illustrated in figure 1. Another method for producing a low-fat soy flour consists of subjecting the flakes to solvent extraction and then adding soybean oil to the defatted flakes to bring the oil or fat content up to the desired level which is usually 4% to 6%.

A high-fat soy flour is usually made by adding soybean oil to the defatted flakes prior to their being ground into flour. The level of total fat customarily specified for a high-fat soy flour is 15%.

It is this processing that converts raw soybeans from a state of comparatively poor nutritional quality and limited usefulness into edible soya products with high nutritional quality which can provide a low cost source of protein for practically limitless use in the human diet throughout the world (8).

Composition

The following are typical or average analyses of some of the different types of soy flours and grits described above:

TABLE 1. COMPOSITION OF SOY FLOURS AND GRITS

	Defatted soy flour or grits	Low-fat soy flour or grits	Full-fat soy flour
Protein (N x 6.25)..	50.5%	46.0%	41.0%
Fat (ether extract)	1.5%	6.5%	20.5%
Fiber	3.2%	3.0%	2.8%
Ash (minerals)..	5.8%	5.5%	5.3%
Carbohydrates (total)	34.2%	34.0%	25.2%

The moisture content of soy flours and grits will vary from 5% to as much as 10%, depending on atmospheric conditions, but will usually average from 5% to 8%.

These soya products contain 0.25% to 0.26% of calcium and from 0.58% to 0.65% of phosphorus. These values are, for the most part, many times greater than those found in the cereals most commonly used for human food—wheat, rice and corn (see table 2) (21).

Sodium, potassium, magnesium and the trace minerals (iron, copper, cobalt, zinc, etc.) are also present in soy flours and grits in varying, but appreciable, amounts.

TABLE 2. CALCIUM AND PHOSPHORUS CONTENT OF SOY FLOURS AND GRITS AS COMPARED WITH SOME CEREALS

	Calcium %	Phosphorus %
Soy flours and grits	0.25-0.26	0.58-0.65
Wheat flour	0.016	0.087
Rice, white	0.024	0.136
Corn meal (degermed)..	0.006	0.099

It will be noted from table 1 that the carbohydrate content of these soya products varies from about 26% to slightly more than 34%. Comparatively little is known about the specific composition of this nutrient or its utilization as a source of energy in the body. We do know, however, that the carbohydrate fraction of soy flours and grits is composed of approximately 5.5% of sucrose and from 20% to 29% of polysaccharides (complex sugars) and barely a trace of starch.

In comparison with cereal grains, soy flour and grits are a fairly good source of B-complex vitamins. Raw soybeans contain a very high level of thiamine (vitamin B-1). Even though the amount is reduced in the flour and grits, the level of thiamine in these products is usually a few times greater than in most cereals. Other water-soluble vitamins (riboflavin, pyridoxine, pantothenic acid, folic acid, niacin) are contained in the three different soya products in varying amounts. Inositol and choline are present as components of the lecithin fraction. Other fat-soluble vitamins or vitamin-like substances are also present, such as carotene and tocopherols. The tocopherols in soya products possess antioxidant properties and are credited with aiding in preventing

or retarding the development of rancidity in the foods or other products to which soy flour or grits are added.

The mixed phosphatide fraction (soy lecithin) in soy flour and grits varies within a range from 1.6% to 2.5%.

Depending on their fat content, the caloric content of the different types of soy flours and grits varies from 360 calories per 100 grams for defatted soy flour or grits to 400 for low-fat soy flour or grits to 480 for full-fat soy flour.

It should be borne in mind that the analytical values discussed above are considered to be "typical averages." Analytical data for particular products under specific conditions may vary from these values.

These analyses are generally used as a basis for determining which of the soya products available is best suited or most easily adapted for a particular application. In addition, specifications have been developed in the trade which clearly define the characteristics desired to further pinpoint the ability of a certain product to meet requirements, mostly physical, found to be desirable for a specific purpose. These soya products are purposely modified during processing to give the functional properties desired for the intended use of the flour or grits.

Raw soybeans contain many enzymes, such as lipoxidase (fat oxidizing), urease (urea decomposing), lipases (fat splitting), and beta amylase, which converts starch into less complex carbohydrates. The effects of a few other enyzmes have been noted but their potency and possible importance have not been fully established.

Several investigators (1) have reported on various nonbeneficial biological factors in raw soybeans. The "antitrypsin factor" or "trypsin inhibitor" and the "hemagglutinating factor" have received the most attention. Although these factors are of academic interest, they have little or no practical significance in processed soy flour and grits or in the cooked or baked foods containing these soya products. These biological factors are all heat-labile and, for that reason, they are inactivated as a result of the heat applied to the flour or grits during processing or the cooking the food containing the soya receives during its preparation for consumption.

For example, soy bread is usually baked at about 425° F. for 30 minutes with the internal temperature of the bread at some 205° F. for at least 15 minutes. This temperature and time interval at the moisture level of the bread (about 38%) is sufficient to bring about optimum nutritional value of the soy protein and to inactivate the so-called "inhibitory factors," even though raw soya was incorporated initially into the formula for the bread or similar baked goods. It is also worthy of note that the investigators who have studied these nonbeneficial factors of raw and underheated soybeans found it necessary to isolate and concentrate the material and inject it directly into the blood stream or other body tissues of the experimental animals in order to demonstrate any detrimental effects.

Nutritional Properties

Obviously, the outstanding feature of soy flour and grits is their relatively high content of excellent quality protein. Specifically, the protein constituents (amino acids) in soy flour and grits serve very effectively to properly supplement or compensate for the amino acid deficiencies found in some of the other components, e.g. cereals, in the diet. This effect is shown in graphic form in figure 2 for some of the cereals commonly used for human food (12).

It is interesting to observe in the bar graph (figure 2) that soya (defatted flour or grits) excels the three cereals—corn, wheat and rice—by a considerable margin in content of each of eight essential amino acids as listed on the graph. Undoubtedly, the most important in terms of potentiality for the human diet are the comparative figures for lysine. Soya supplies some 10 times more lysine than any of the three cereals. Wheat and corn are equally deficient in lysine, with rice containing slightly more lysine. Even at that, soya contains approximately 10 times more lysine than rice.

A closer examination of the values in the bar graph for the other amino acids reveals such information as follows:

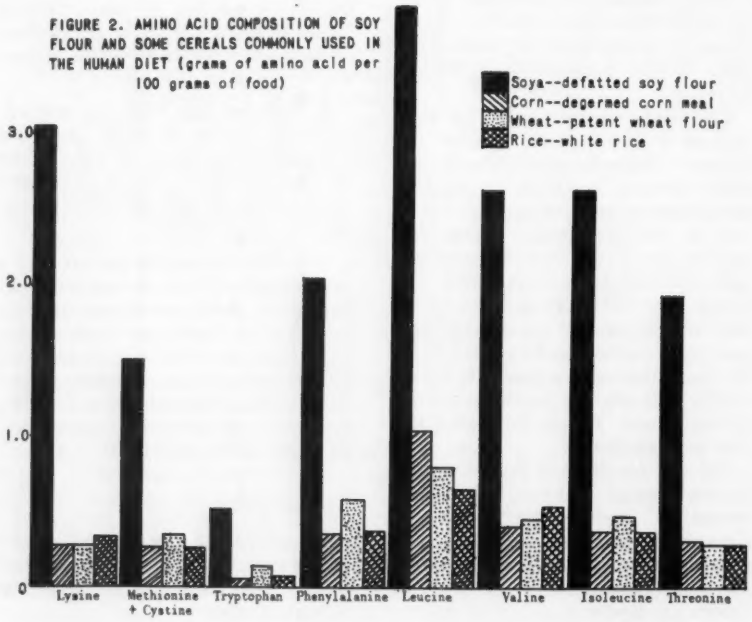
1—Wheat excels corn and rice in content of four of the amino acids. The three cereals are virtually equal in content of two of the amino acids. This leaves two amino acids unaccounted for with reference to this comparison between the three cereals—corn, wheat and rice. One of these amino acids, leucine, finds corn some 25% higher than wheat, and wheat 22% greater than rice. The other amino acid is valine, with rice slightly higher than wheat and corn.

2—Corn is notoriously deficient in the very important amino acid, tryptophan. Rice supplies a trifle more but wheat contains twice as much as corn.

3—Soya contains nine times more tryptophan than corn but only about three and a half times more than wheat.

4—The combination of methionine and cystine for soya gives quite an impressive figure compared with the three cereals, namely: four and a third times more than wheat, nearly six times greater than corn or rice. Nevertheless, it is generally conceded that even a properly processed soy flour does not contain a sufficient amount of methionine in terms of the requirement for humans and animals. However, combining the

FIGURE 2. AMINO ACID COMPOSITION OF SOY FLOUR AND SOME CEREALS COMMONLY USED IN THE HUMAN DIET (grams of amino acid per 100 grams of food)



cystine and methionine values, which appears permissible because of the sparing effect cystine has on methionine, seems to account for the favorable protein efficiency determined by a biological assay of soy flour.

The addition of soy flour to bread contributes an abundance of lysine, which, as mentioned earlier, is the only serious amino acid deficiency in the protein of wheat flour. The improvement in the biological value of the protein in a soya bread depends for the most part on the amount of soy used in proportion to the wheat flour called for in the formula. More will be said about this feature shortly. In addition to enhancing the nutritional value of bread, important authorities in this field believe that soy flour and soy grits improve the texture and crust of the bread; the bread makes better toast, retains moisture longer (increased shelf life) and has an improved flavor (18).

Carlson and her associates (3) have presented the data from a classical piece of research in which they compared the effect of soy flour and non-fat dry milk solids in white bread on the nutritional quality of the protein. When the protein efficiency of the bread samples containing various levels of soy flour (defatted type) or non-fat dry milk solids was determined, it was found that the bread supplemented with 3% of soy flour was equal in nutritive value to bread containing 3% milk solids and significantly better (almost 30% better) than the bread with no protein supplementation. Bread supplemented with 5% of soy flour was at least equal in nutritive value to the bread containing 6% milk, 24% better than whole wheat bread and significantly (41%) better than the unsupplemented bread.

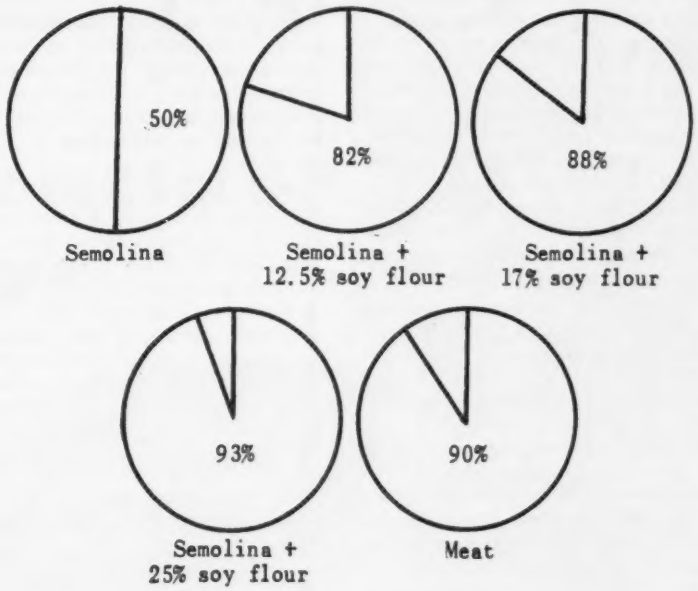
The addition of soy grits to cookies, made on the basis of a commercial formula, was found to exert a significantly beneficial effect on the nutritive value of the cookies (19). In fact, the experimental animals fed on the unsupplemented cookies actually lost weight whereas those fed the cookies containing soy grits gained, on the average, about 59 grams during the 42-day test period.

Carlson and her co-workers (4) evaluated the nutritional effect of fortifying graham crackers by substituting 30% of soy grits for an equivalent amount of the graham flour. These tests showed the crackers containing soy grits to be markedly superior in nutritional quality to regular graham crackers.

Reynolds and Hall (13) studied the effect of adding soy flour (both defatted and full-fat) on the protein value of white cake, yellow cake, devil's food cake, sugar cookies and pastry. "Soy flour was added to the mixtures to the extent of 6% of the wheat flour in white and yellow cakes and 10% of the wheat flour in devil's food cake, pastry and cookies, using formulas provided by commercial bakeries." They reported that "growth performance, protein efficiency and nitrogen storage efficiency" supported by the soy-supplemented products was superior in every instance to that produced by the nonsupplemented cakes and other products. They also observed that, while the small amounts of milk and eggs used in the cakes undoubtedly served to improve the quality of the protein in the wheat flour, the addition of soy flour to the formula resulted in further improvement.

More recently, investigators (22) have demonstrated the supplemental effect of soy flour on the cereal flours commonly used in some food products. The results of these studies are presented graphically in figure 3. The data from these studies show how the nutritional value of a cereal-and-soya mixture can be made to equal, or surpass, that of meat protein by the addition of increasing increments of soy flour.

FIGURE 3. SUPPLEMENTAL EFFECT OF SOY FLOUR ON THE NUTRITIVE VALUE OF CEREAL--SOYA MIXTURES



(Relative protein efficiency based on milk solids equal 100%)

Soy flour, as a component in the formula for soy milk has been shown (10) to have a very high nutritional value in the feeding of infants and children. This form of soya has served very effectively as a milk substitute in that the gain in weight and growth increase in infants fed the soy milk have been most satisfactory in comparison with those made by healthy nursing babies. Data from various studies with soy milk made from soy flour will be discussed in detail later in this article.

Numerous studies, conducted over the years by both academic and industrial researchers, have proven the outstanding ability of soy flour and grits to properly supplement the basic components of the diet to provide a more complete plane of nutrition for those who consume these items.

Conventional Uses

The list of uses of soy flour and grits in human nutrition is a long one (see figure 1). Some of the more important uses are: bread (white and high-protein types), bakery products of all types (including doughnuts, cookies and crackers), breakfast cereals, macaroni and spaghetti products, snack items, soups, baby foods (dry and canned), prepared mixes

(including mixes for doughnuts, pancakes and waffles), prepared meat products (meat loaf, sausage, etc.), candies and high-protein food drinks. All of these uses are based primarily on the ability of the soya to properly supplement the basic components of the diet. For the most part, any one of the three types of soy flour (full-fat, low-fat and defatted) is suitable for use in the above-mentioned foods. However, preference is frequently given to full-fat soy flour in certain bakery products, especially Danish-type pastry and for use in dry powdered soy milk mixes.

As previously stated, soy flours and grits are purposely modified during processing to give the functional properties desired for the use which will be made of the product. In fact, it may be said that these soya products are tailor-made through controlled processing so as to produce materials with specific characteristics for prescribed uses.

Soy flour or grits usually receive special processing when they are intended principally for use in bread, cakes, rolls, sweet doughs, cookies, macaroni and dry mixes for cakes, muffins, pancakes and doughnuts. In each of these instances the food product will be subjected to a sufficient amount of heat treatment during the baking process to render the protein in the soya biologically available for maximum nutritional value.

Soya products that have received moderate cooking during processing are used primarily in chocolate beverages, pancake and waffle mixes, gravies, soups, puddings, macaroni and general bakery products and as a binder in sausage and other meats, where a variable amount of heat may be applied in preparing these foods containing soya. A soy flour of this type is sometimes referred to as a general purpose product.

Soy flour or grits that have been quite thoroughly cooked or toasted during processing are customarily used in crackers, beverages, cookies and cereals which receive little or no cooking in preparation for consumption.

Chen (5) and Van Duyne (17) (18) have each listed a great variety of recipes for using soy flour and grits, as well as soy flakes, soybean oil and green and dried soybeans. The processors of edible soya products have developed and evaluated recipes in which their products may be utilized. These recipes are made available on request from those who are interested in expanding the use of soya products in their diets.

Economic Aspects

In most areas of the world, cereals can be produced at a comparatively reasonable cost per unit of nutrient. However, they are composed largely of carbohydrates which can be used only for energy. Such proteins as are found in cereals are present in relatively small amounts and are of definitely poor quality from the standpoint of amount and balance of the amino acids of which they are composed.

In those countries of the world where land area and animal populations are such as to support an adequate animal agriculture, the poor quality protein and the good-to-excellent energy in cereals can be converted into better protein by feeding them to an intermediate "factory," livestock and poultry. These animals possess the ability to utilize the carbohydrates and poor-quality protein in cereals, when properly supplemented with soybean meal or some other source of good quality protein, vitamins, minerals, etc., to produce body growth (meat) and/or additional food units in the form of eggs or milk.

Unfortunately, these animal "factories" are comparatively inefficient from the standpoint of conversion of nutrients consumed to nutrients produced. For example, if we were to consider such a conversion in the case of the broiler chicken, which has been shown to be quite efficient in this respect, we find that it requires about 2.5 pounds of feed to produce 1 pound of meat. Assuming the feed and the meat both contain 20% crude protein (see table 3) (20), we find that 0.5 pound of protein in the feed is required to produce 0.2 pound of protein in the meat—a ratio of 2.5 to 1.

Periodic trips to the local food markets serve to point up the fact that this use of livestock and poultry products (milk, meat and eggs) is a most expensive way to acquire protein. Unless we are able to breed super-efficient animals, this process will continue to become more and more expensive. As world populations increase, less land area will be available for producing cereals and grazing animals. This can only result in increased costs per unit of nutrients produced under these conditions. This state of affairs is already obviously apparent in many areas of the world.

In those areas where an adequate animal agriculture cannot be supported on a basis great enough to meet the nutritional requirements of the people, this source of protein becomes economically, and often physically, unavailable. These people must then turn to vegetable sources of protein, such as soya products (flour, grits, concentrated protein, tofu, miso, tempeh, etc.) or other vegetable proteins of domestic origin, even though these indigenous proteins are admittedly inferior to soya in quality for dietary purposes. The only other alternative is to explore the possibilities of using local fish or imported fish to meet their protein requirements. To date, fish have not been found satisfactory (as to availability or economics) to supply more than a small part of their protein requirements.

If we take another look at the tabular data on the protein content of several foodstuffs (table 3), we can readily see that the protein from

TABLE 3. MOISTURE, PROTEIN CONTENT, PRICE PER POUND AND COST PER POUND OF PROTEIN IN SOME FOODSTUFFS

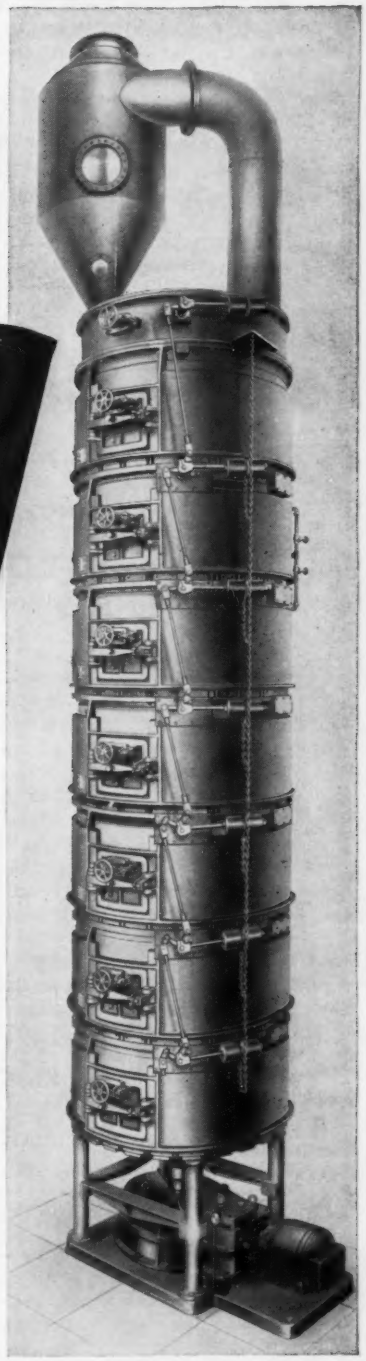
	Moisture %	Protein %	Price per pound	Cost per pound of protein*
Dairy products				
Cow's milk, whole, fluid	87.0	3.5	$0.18**	$2.60
Cow's milk, non-fat, fluid	90.5	3.5	0.15**	2.10
Cow's milk, non-fat solids, dry	3.5	35.6	0.28	0.79
Cheese (average of several kinds)	46.3	21.8	0.60	2.75
Cereals				
Corn meal, degermed	12.0	7.9	0.13	1.62
Farina	10.5	10.9	0.21	1.28
Flour, rye, dark	11.0	16.3	0.10	0.61
Flour, wheat, all purpose	12.0	10.5	0.10	0.95
Meat and fish				
Beef (average of various cuts)	51.4	22.0-27.0	0.83	3.32
Lamb (average of various cuts)	53.5	24.0	0.70	2.92
Pork (average of various cuts)	49.3	23.0-25.0	0.65	2.71
Veal (average of various cuts)	60.3	20.0-28.0	1.00	4.18
Fish (average of several species)	68.0	21.3	0.51	2.39
Poultry and eggs				
Chicken	70.3	20.0	0.39	1.95
Duck	54.3	16.0	0.49	3.06
Goose	49.7	16.0	.....	.....
Turkey	58.3	20.0	0.39	1.95
Eggs, whole, raw	74.0	12.8	0.39***	2.17
Eggs, whole, dried	5.0	46.8	.....	.....
Soy flour				
Soy flour, defatted	5.0-8.0	50.0-52.0	0.25	0.50

* Based on current retail prices, May 19, 1961, in Minneapolis, Minn. ** Price per quart. *** Price per dozen.

FRENCH

Desolventizer Toaster

The industry's newest – safest – most efficient method for solvent removal and recovery



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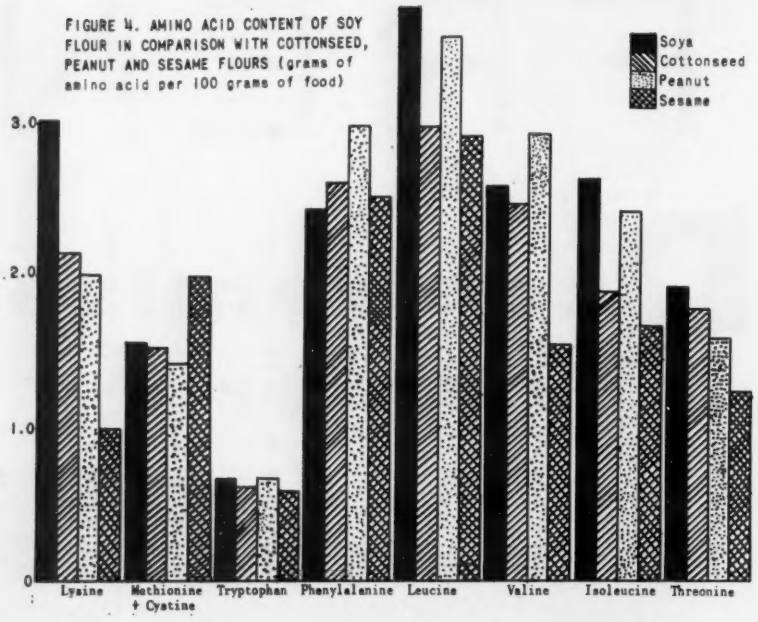
soya products is the lowest-priced form of high quality protein available from these sources for inclusion in the human diet. For example, if we assume an average value of 25% protein in beef and beefsteak sells for $1 per pound, then each pound of protein from beefsteak costs $4 per pound. On the other hand, defatted soy flour contains 50% of beefsteak-quality protein and sells for about 25¢ per pound in the United States. Consequently, the protein from the soy flour costs 50¢ per pound as compared with $4 per pound for the protein from beefsteak. Similar comparisons may be made between the cost of a pound of protein from soya products and that from other sources as listed in the table.

In many areas of the world where animal sources of protein are not adequate to meet the nutritional requirements, attempts have been made to use vegetable proteins grown in those countries, other than or in addition to soya products, to make up the deficit both as to quality and quantity. Cottonseed, peanut and sesame flours have been quite widely used in certain areas for this purpose.

Figure 4 shows a comparison of the amino acid content of these vegetable protein sources with that of defatted soy flour (12). It will be noted that, with very few exceptions, the amount of these amino acids contained in the soy flour is significantly greater than the respective amounts present in the other sources of protein. For example, the lysine content of soy flour is almost 45% greater than in cottonseed flour, about 48% higher than in peanut flour and 300% as great as the level of this amino acid in sesame flour. Since the cereal flours are notoriously low in lysine, these values indicate the comparative ability of the various sources of protein to supplement the cereals in the diet.

FIGURE 4. AMINO ACID CONTENT OF SOY FLOUR IN COMPARISON WITH COTTONSEED, PEANUT AND SESAME FLOURS (grams of amino acid per 100 grams of food)



Recommended Uses in Specific Diets

Over the past 25 years or so, workers in the field of animal nutrition have demonstrated repeatedly that the protein of the soybean, when properly processed, can definitely replace the more expensive sources of animal protein in the economical and efficient production of livestock and poultry (1) (9). The protein in soy flour and allied soya products can perform the same efficient function in the diet of human beings and, as shown above, at much less cost than most of the sources of protein presently proposed to be used for this purpose.

Special biscuits, cookies or crackers, fortified with soy flour or grits, qualify as an excellent source of protein, especially in those areas and instances where facilities are limited for preparing and serving foods. There are many areas where people live or where refugees are being maintained in which these underfed, underprivileged children and adults do not have sufficient supplies of water available to much more than provide a minimum amount for the preparation of foods and to wash cooking utensils, to say nothing of meeting their needs for body cleanliness. Soy-fortified foods, prepared with a minimum of water, can provide these people with beefsteak-quality protein at a fraction of the cost of meat protein—if meat protein could be made available to them.

The experience of Dean in Germany after World War II with the feeding of certain soy-and-cereal mixtures to groups of undernourished children has been reported (2). His work with the successful use of an emulsified mixture of whole soybeans, bananas and added vitamins to treat a number of small children in Uganda suffering from kwashiorkor has been reviewed (2). An instance has also been reported (15) in which 30 grams of soy flour were given daily for 3 months to nursing mothers during the first 6 months of lactation. The soy flour supplementation produced a significantly higher output of milk and there was no change in quality in comparison with an equal number of controls. The soy flour was used to supplement ad libitum diets composed of meat, bread, rice, beans, cassava and yams.

Soy flours and grits are used fairly extensively at the present time in feeding programs at public and private institutions (prisons, mental hospitals, children's homes and homes for the aged). In these instances, they serve as a low-cost source of excellent protein and give the administrators of such institutions an opportunity to markedly improve the standards of the diets served to their charges. This use of these soya products offers a considerable potential, both from the standpoint of improvement in the plane of nutrition, as well as the economy of caring for people in institutions of this kind. It has been pointed out that if only 3 pounds of soy flour were used to supplement each 100 pounds of meat and cereal products in such feeding programs, this could mean a savings of upward of 3¢ per person per day.

These soya products also have a highly significant potential for use in feeding programs in cafeterias that are maintained in conjunction with various industrial enterprises, such as manufacturing plants, mining operations, and the like, where it is desired to supplement the nutritional standards of the workers at a comparatively low cost per person.

In addition to providing an economical source of excellent protein for feeding people in areas where protein is at a premium for food purposes, and in the feeding of refu-

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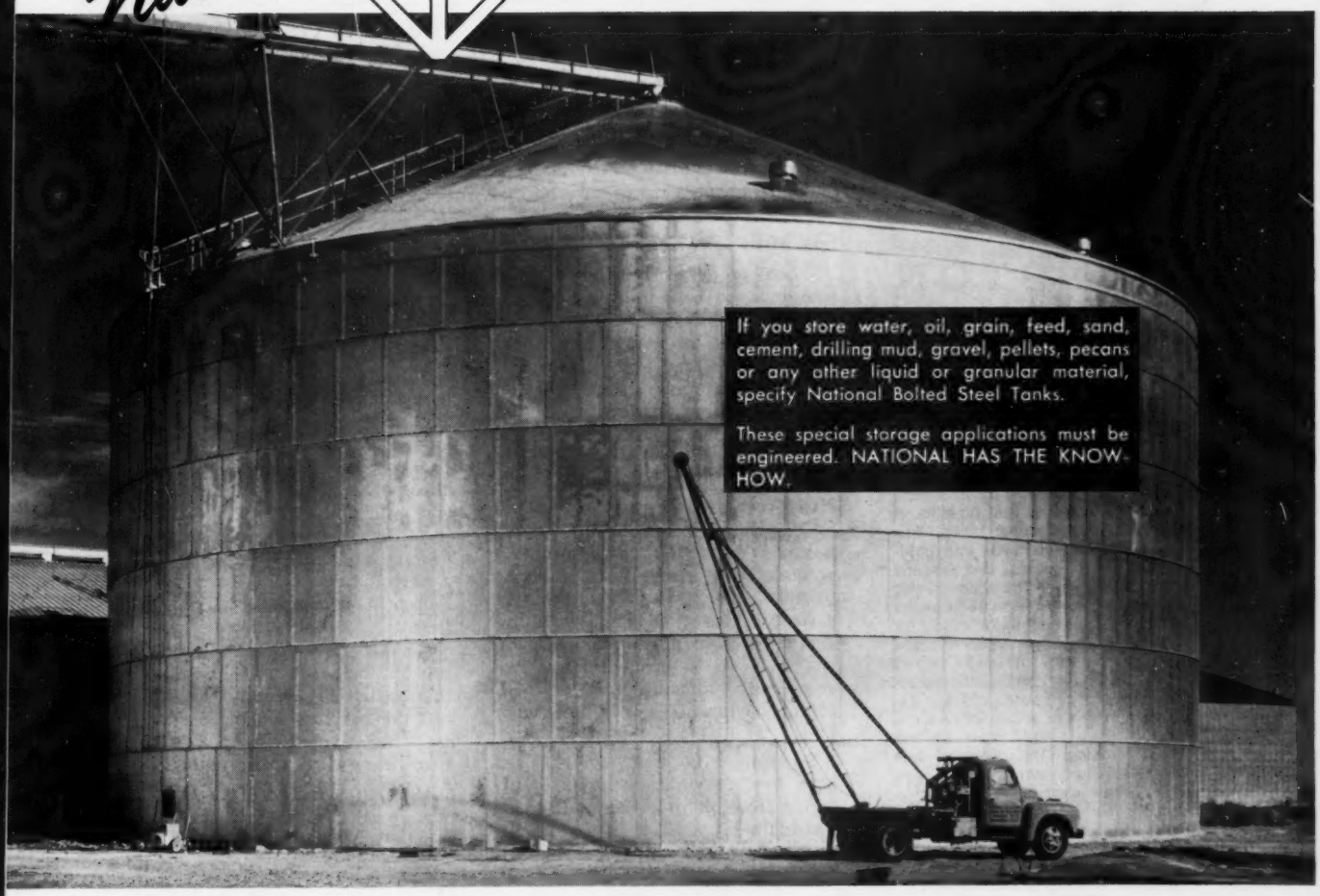

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gees and displaced persons, soy flour and grits are finding increased utilization in special diets for children and adults, as well as in conjunction with treatment for certain diseases and allergenic conditions. Soya products can be used very effectively in the diets of people who are allergic to the protein in wheat, eggs and other foods.

Because of their low starch content, soy flours and grits serve a definite purpose in the diet of persons who are suffering from diabetes. Many recipes containing soy flour have been developed that are being used successfully in diabetic diets under physicians' orders.

Soy Milk as a Food for Children

When prepared by the oriental technique, soybean milk is a suspension of ground soybeans in water in that soaked soybeans are finely ground and mixed with water (23). The resultant mass is poured into cheesecloth through which the liquid phase passes and is recovered as the milk.

In the western world and other areas, soy milk is usually prepared by dispersing in water a powdered mixture consisting of a properly processed soy flour, preferably a full-fat flour, vitamins, minerals, carbohydrates, and, in some instances, a flavoring compound. This water dispersed product looks like cow's milk but it has a slightly different composition and the flavor (taste) is distinctly different.

Soy milk is becoming widely used as a food for infants that are suffering from malnutrition and for individuals afflicted with certain allergies, diabetes and other diseases associated with their diet.

Kay and his co-workers (10) have reviewed the literature pertaining to the use of soybean milk in the feeding of infants. Undoubtedly, soy milk has furnished a major portion of the food of babies in the Orient for as long as the soybean has been known. As early as 1909 the use of soybean gruel or milk was recommended as being of value in the diet of sick infants (14). In 1929 Tso (16) fed newborn infants a soybean milk until they reached the age of 6 to 9 months. The weight increase of these infants was quite comparable to that of healthy nursing infants.

Glaser and Johnstone (7) demonstrated satisfactory weight gains in 42 infants fed soy milk as a milk substitute. More recently, Fomon (6) duplicated these satisfactory results in infants fed a soy milk formula for periods of 36 to 72 days.

Kay and his associates (10) studied the growth and development of normal infants fed soy milk from birth to 3 months of age. This study was made in comparison with a group of infants of the same age fed formulae based on evaporated milk. They reported that the total weight and length gains of the infants receiving the soy milk were similar to those fed evaporated milk. The physical examinations and developmental achievement were similar for both groups.

This substitute for milk is also used for feeding children in those areas of the world where cow's milk is either economically unavailable or nonexistent. In addition, a fairly high percentage of children throughout the world show a sensitivity or allergic reaction to cow's milk. In such cases, the feeding of soy milk enables such children to grow and develop normally.

Miller (11) has described the establishment of plants for the production and distribution of soy milk in various areas of the Orient and Far East. Usually these plants produce both milk and soy cheese (tofu) and both children and adults benefit from the improved sources of protein foods. As Miller says: "Thus a partial solution of the all-important protein in the nutrition of the Orientals, within their economic reach, is now a possibility. No greater benefit can be visualized than nutrition adequate for infants and the growing school child."

Summary and Conclusions

Mention is made of the types of soya products that are quite commonly used for food in different parts of the world. We, in the United States, know very little about the foods made from soybeans in the Orient and their importance in the dietary pattern of the inhabitants —young and old—in the Far East. Our types of edible soy products (flour, grits and concentrated protein), although practically unknown in the Orient, are gaining rapidly in importance among occidental peoples everywhere as a source of high quality protein for use in foods. There are good reasons to believe that these soya products of ours will eventually find a fair to good market in the Orient. The same can be said for the typical oriental soy foods finding acceptance in western-style countries.

This article is devoted primarily to various pertinent aspects of soy flour and grits, as worthy food ingredients for use in diets, both at home and abroad, as a source of in-

expensive high quality protein to supplement the cereal portion of many foods. The most important subjects covered herein, with respect to soy flour and grits, are: (1) Historical background; (2) definitions; (3) types and/or kinds; (4) processing; (5) composition; (6) content of most important amino acids in soy flour and grits, in a few other vegetable-type proteins and in the cereal grains—corn, wheat and rice; (7) nutritive properties of soy flour and grits; (8) recommended uses in conventional and special diets; (9) economic aspects; (10) soybean milk and/or soy milk for infants and children.

The need for proper and adequate protein nutrition of both children and adults has long been recognized. Only optimum levels of good quality protein in the diet can produce desirable physical and mental development.

Unfortunately, many of the foods indigenous to most of the countries of the world are either low in protein or contain protein of poor nutritional quality. In many countries, the production of cow's milk is not sufficient, and adequate amounts cannot be imported, to supply the nutritional requirements of infants, young children and pregnant and nursing mothers. In addition, older infants and children need protein foods besides milk for their optimum growth and development.

In those areas where the economy is underdeveloped, the protein-rich foods recommended for use in the diet must be of excellent quality, low in cost, readily available and easily prepared for consumption.

While it may be possible in some areas to increase the availability and consumption of foods of animal origin, such products are usually beyond the economic reach of those people whose need for them is greatest. As the populations increase in the various areas, sufficient land acreage will not be available to support an animal agriculture in the magnitude necessary to meet the nutritional requirements of the increased number of people. Better and wider use of vegetable protein sources, such as soy flour and grits, is the only practical solution to the prevention of protein malnutrition in many areas of the world.

As a result of their increasing availability on a worldwide basis, soya products serve very effectively to supplement the diets of people in those areas where milk and other animal proteins are either economically unavailable or in short supply. Properly processed soy flour and grits furnish protein that is comparable or very nearly equal in nutritive value to milk and meat. These products from the soybean serve as a source of this excellent quality protein at a fraction of the cost of the protein from animal sources. In addition, and of greater importance, is the fact that the protein from soy flour and grits can supplement the poor quality protein in cereals to the extent that the nutritional value of the cereal-and-soya mixture is comparable to that of protein from animal sources.

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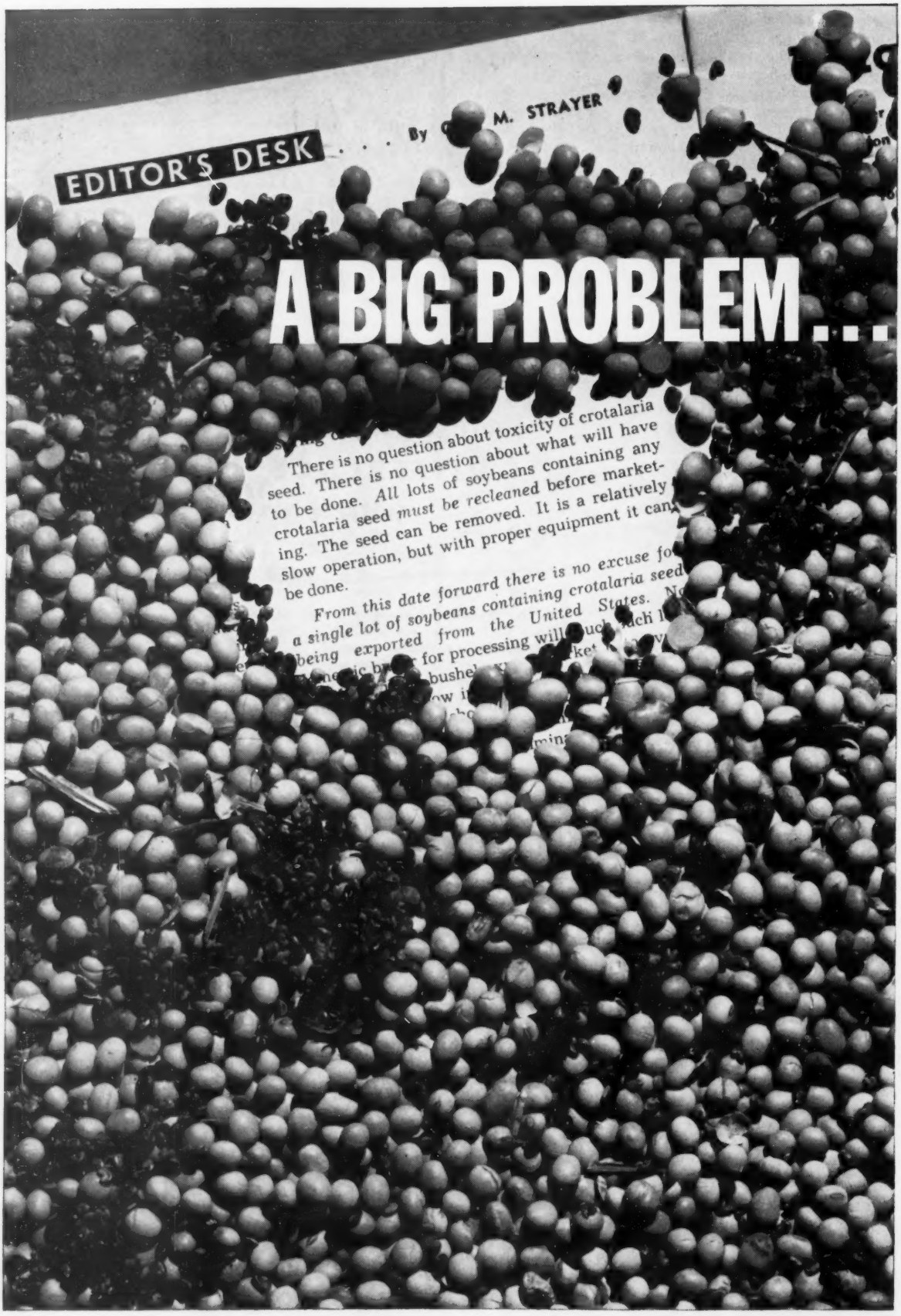
EDITOR'S DESK
By M. STRAYER
A BIG PROBLEM...
There is no question about toxicity of crotalaria seed. There is no question about what will have to be done. All lots of soybeans containing any crotalaria seed must be recleaned before marketing. The seed can be removed. It is a relatively slow operation, but with proper equipment it can be done.
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Fig. 1

Fig. 2

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New Orleans Celebrates New Channel to the Gulf

THE PORT of New Orleans, in cooperation with the U. S. Army Engineers, recently celebrated the breakthrough to the Gulf of Mexico of a new, 76-mile Tidewater channel, which upon its completion will provide a new access to deep water, shorter by almost 40 miles than the old river route.

The new channel not only provides a more direct route to the Port of New Orleans, but also opens up thousands of acres for the use of industry which can profit from deep-water frontage and which is, more and more, importing its raw materials from overseas countries.

Another year of dredging remains. Next year, the channel will reach dimensions usable by ocean vessels—when it will be dredged to a 36-foot depth and a 300-foot width. A year or so later, the channel will reach full specifications of 500-foot bottom width and probably a minimum 40-foot depth.

(Condensed from an article by Edward Kimbrough in New Orleans Port Record.)

BREAKTHROUGH of new channel from Port of New Orleans to Gulf of Mexico.

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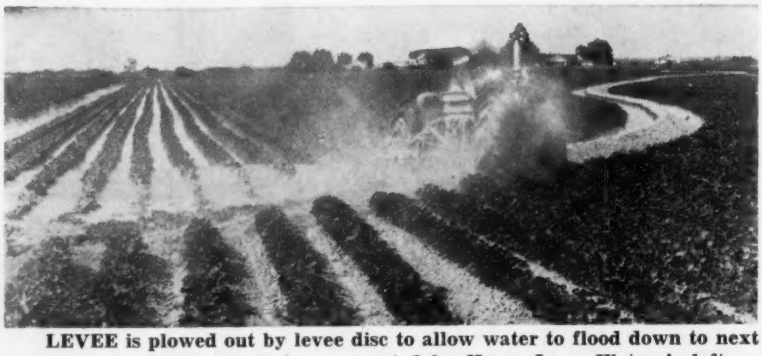
Serving the Soybean Industry Since 1935

New Irrigation Technique in Arkansas

GRAND PRAIRIE, Ark., soybean growers used a flush-flooding irrigation technique on soybeans to offset the drought for the first time last August.

The system, first suggested by Marion Seeman and developed by surveyor Floyd Saul, utilizes levees on about ½-foot elevations. Beginning at top of the field, water is flooded to first levee until it backs up. Then with the use of the inverted levee disc shown in the picture, that levee is cut out, allowing water to sweep smoothly on across to second levee, which is cut out in its turn, and so across the field. The disc makes two passes to insure leveling of the levee. The water is left on only long enough to gain penetration, thereby averting scalding of young beans and eliminating erosion from the old shovel-cut method.

"North of Stuttgart last year the latter days of June we had from 8 to 17 inches of rain in less than 40 hours," says Jake Hartz, Jr., Jacob Hartz Seed Co., Stuttgart. "Large acreages of soybeans were completely lost and it was necessary that they be replanted. This field (in the picture) was planted July 10. On the (upper) left margin you can see the older beans that were planted early in June. This will give you an idea of the difference in growth. At this date in August normally our soybeans have closed the row and are blooming.



LEVEE is plowed out by levee disc to allow water to flood down to next levee, on Herbert Bull farm operated by Harry Ives. Water is left on only long enough to gain penetration thereby averting scalding of young beans and eliminating erosion.

"We were quite concerned that our production would be cut severely because of the lateness of these beans and it was necessary that we devise some method of irrigation to get them growing. There had been no rainfall in the area since the terrific storm the latter part of June. As we have only a shallow soil there was no subsoil moisture for this crop to use.

"With our conventional method of irrigation with contour levees we were afraid that the soybeans, which

were 6 to 10 inches tall, would drown with the depth of water that had to be held over the soil to give complete coverage of the soil.

"With this new method we were able to 'flush' the fields very rapidly with surprising results. What we actually do is build up a 'head' of water in the first levee and distribute the water hurriedly over the field by completely destroying the levees from the top of the field to the bottom as each levee is filled.

"We feel that a great number of farmers will go to this method in the future as we are applying less water per acre than with our previous method."

Winners in New N. C. 50-Bushel Soybean Club

LINDSEY HAMPTON and his son, Newton, from Coinjack, Currituck County, were North Carolina's soybean growing champions of 1960 and first winners in the state's new 50-Bushel Soybean Club. The Hamptons produced an average of 51.68 bushels per acre on 3 acres, according to George Spain, extension soybean specialist, North Carolina State College, and chairman of the 50-Bushel Club.

Lister Jones, Northampton County, also made the 50-Bushel Club with 51.30 bushels per acre.

L. E. Yelverton, Sureka, made 60.44 bushels per acre, but his application was not in before the deadline.

Other high yielders were Coy Robertson, Williamston, 49.23 bu.; Joel Sutton, Kinston, 45 bu.; Marsh Doxey, Aydlett, 44.5 bu.; James E. Ferebee, Shawboro, 40 bu.; Lewis Sawyer, Gregory, 40 bu.; and Jack Rich, Turkey, 34.6 bu.

The Hamptons produced the top yield on sandy loam soil that is well drained and kept a high state of fertility. Soil tests indicated the soil had been limed so the pH was about 6, the best level for soybeans.

Phosphate and potash were very high; calcium and manganese, high. Organic matter content was 2.7%.

The Hamptons planted Hill soybeans on May 15 in 42-inch rows. They planted their soybeans after corn, their usual rotation. Weeds were controlled by one rotary hoe treatment and three cultivations.

"I always break my land deep," Mr. Hampton explained, "because I find that I get best yields by breaking it this way and keeping fertility high." The Hamptons applied 500 pounds of 3-9-18 to their corn which preceded the soybeans. This left potash and other nutrients at such a level that no direct fertilizer was needed for the soybeans.

Lister Jones' soil was well drained, and he had added lime and fertilizer to peanuts on the field the past 2 years prior to planting it to soybeans.

Mr. Jones also applied 150 pounds of 0-10-20 directly to the soybeans at planting time, since a soil test indicated that fertilizer might be needed.

Mr. Jones planted Lee and Jackson, which he felt helped reduce the risk of a single variety. The soybeans were planted May 13 and cultivated four times.

"I find the most efficient soybean growers in this area are farmers who plant on good soils, and provide just as good management for their soybeans as they do for other market crops," Mr. Jones said. He also is an advocate of deep plowing in his soil preparation.

South Carolina Contest

A SOYBEAN contest has been opened to farmers in 16 Piedmont area counties of South Carolina, according to Luther P. Anderson, Clemson extension agronomist.

Mobile Exhibit Big Hit

THE MOBILE feed exhibit sponsored jointly by the Soybean Council, the U. S. Feed Grains Council, and USDA's Foreign Agricultural Service, proved a stellar attraction at the big Ballahoj agricultural fair at Copenhagen in June. Danish farmers flocked into Copenhagen by the thousands to join their city cousins at the colorful event. Crowds passing through the U. S. exhibit were estimated at from 15,000 to 22,000 per day. Major emphasis in the mobile exhibit is given to high-quality U. S. feeds including soybean meal.

Danish farmers and trade people enjoyed a demonstration of how they can produce more meat, milk and eggs for less cost, in less time.

The mobile exhibit will be operating in other cities in the Scandinavian countries and Austria in coming weeks. Technical assistance at the exhibit is provided by E. D. Griffith, Evanston, Ill., representing the Council.

Council Exhibits at Spanish Country Fair

THE COUNCIL was represented at the second Country Fair at Talavera de la Reina, near Madrid, Spain, in the province of Toledo. Gonzalo Rivera, information officer for the Spanish office, was in charge of the SBCA exhibit. Emphasis once more was on the importance of soy protein in balanced feeds for animal nutrition.

This was a typical lively Spanish country fair, with an amusement area, motor car races and bullfights in the bull ring. Exhibits ranged from champion livestock and poultry to antibiotics, cars, saddles and farm machinery. The fair was attended by people from many parts of Spain.

Introducing New Council Directors

WE INTRODUCE four more country directors for the Soybean Council.

All were recently appointed and attended the Soybean Council's staff conference in Stockholm in May and June, then observed the Council's market development programs at the Rome office and in several European countries before returning to their home offices.

Bahman Sepahpur is the SBCA director for Iran. He was born in Teheran, has attended college both in the United Kingdom and at the University of Nebraska. He lived in California for 2 years.

Mr. Sepahpur has had experience in farm management in Iran and assists his father, a retired army officer on the family farm.

Vasfi Hakman is the SBCA director for Turkey. A native of Turkey, he attended regional agricultural school in Istanbul and was an infantry officer in the Turkish army.

Mr. Hakman had experience both as a county agent and an agriculture

The Soybean Council Around the World

DENMARK'S ROYAL family tours the U. S. feed exhibit sponsored by SBCA and the U. S. Feed Grains Council at the Bellahoj agricultural fair held recently in Copenhagen. Queen Ingrid is shown on the left carrying flowers as she smiles at young fair attendants. She is followed by her daughter, Princess Benedikte. Denmark's tall monarch, Frederik IX, is at right.

SBCA INFORMATION officer Gonzalo Rivera shakes hands with the civil governor of Toledo at the country fair at Talavera de la Reina, where the Council had a booth. The governor was accompanied by many important persons of the province.

OPENING OF THE fourth International Mixed Feed Conference in Rome. Hon. Mario Ferrari-Aggradi, a member of the Italian Parliament and former Italian Minister of Agriculture, is greeted by Clayton E. Whipple, U. S. agricultural attache, Rome, and by William W. Cravens, director of feed research, Central Soya. Left to right, Mr. Whipple, Mrs. Fred R. Marti, Dr. Cravens, and the Hon. Ferrari-Aggradi.

PALERMO FAIR. Officials of the Federconsorzi Palermo regional office and SBCA representatives visited the Federconsorzi stand at the Palermo (Italy) International Sample Fair which displayed the Council's mobile exhibit in May and June. Left to right: Rag. Guido Panno, Federconsorzi; Emilio Nacci, SBCA press office; Giuseppe Livoti, Federconsorzi; and Benito Spinelli, SBCA exhibit attendant.

Bahman Sepahpur

Vasfi Hakman

Atta Hasan

Reginald Wood

teacher. In 1953 he came to the United States for a year's technical training in poultry. On his return he was appointed a poultry specialist to the general directorate of state farms of Turkey. In a 3-year period he established 17 demonstration poultry farms in that country. Then he spent 3 years with International Cooperation Administration as poultry advisor.

Mr. Hakman is owner and editor of Giftlik, the one general farm magazine in Turkey.

Reginald I. Wood is the SBCA director for the United Kingdom. For the past 6 years he has been a director of Attwood Statistics, Ltd., a British market research organization of international repute, where he has been responsible for numerous studies in the distribution of farm and other food products. He has had considerable experience in the marketing field.

Mr. Wood formerly was a lieutenant colonel in the Regular British Army, and served in France, Germany, and Burma, where he was awarded the Military Cross, during World War II. He is a graduate of both the Royal Military College Sandhurst—Britain's West Point—and the Army Staff College Camberley.

Atta Hasan is the SBCA director for Pakistan. He holds a BA degree in physics at the University of Madras, India, and attended a special management course in Cambridge, England.

Mr. Hasan has been a director of the Business Research Center, University of Karachi, and headed its activities since March 1960.

SBCA STAFF members visit harbor facilities in Hamburg, Germany, during the 8th International Animal Production Conference there in June. Left to right, Andre Tawa, SBCA director for U.A.R.; Vasfi Hakman, SBCA director for Turkey; Bahman Sepahpur, SBCA director for Iran; Atta Hasan, SBCA director for Pakistan; Karl-Wolfgang Fangauf, SBCA director for Germany; Willi Tempel, grain section, Hamburg Port Authorities; Guillermo Ivanissevich, SBCA director for Peru. Samples of incoming U. S. soybeans are examined on board the tanker Geovanella D'Amico.

COMMITTEE members sample school lunch bread made with soy flour, at meeting with JASI.

Hold School Lunch Meeting

By **SHIZUKA HAYASHI**
Managing Director, Japanese American Soybean Institute, Nikkatsu International Bldg., No. 1-Chome Yurakucho Chiyoda-Ku, Tokyo, Japan

A 15-MEMBER committee for the school lunch program of the Tokyo municipality, one from each ward, visited the JASI office July 4 to become familiar with soybeans and discuss the possibility of using soy flour in school lunch bread. Two members of the committee had previously visited JASI, asking whether the entire committee could come to the office.

It is quite unusual for government officials to take the initiative in setting up a meeting of this type. Undoubtedly this was the result of promotion of soy flour by the Japanese baking industry. Officials having government positions perhaps consider it a disgrace to make business calls on civilians. They like to summon people. As time goes on the younger generation will probably change this. The visit to JASI was a drastic change.

At the seminar meeting it was first explained by the chairman of the committee that because of the recommendation by the metropolitan school lunch program that 20 grams of soybean products be included in each school lunch, the members of the committee were finding it necessary to familiarize themselves with all phases of soybeans. A full 3 hours were devoted to the seminar.

We emphasized the value of adding 5% to 10% soy flour to fortify the nutrition of the school lunch bread. Committee members were told that, based on the daily requisite of 12.7 grams of essential amino acids, an annual saving of 8 billion yen or $20 million would be made if 10% soy flour were added to the school lunch bread now served to the nearly 10 million children in the school lunch program.

One of the discussions was on how soybean products can best be used in the school lunch. The committee explained that traditional foods such as miso and tofu have disadvantages mainly because of their perishable quality and the inconvenience in handling.

The children are beginning to show preference for new foods of more the western style. As the result of promotion, the soybean has recently become known as a very important source of protein and fat and its usage strongly encouraged. The committee said that aside from the usual uses of soy foods, like miso and tofu, it has become a serious problem to find new types of soybean foods that can be conveniently used in the school lunch program.

We displayed on the table for sampling various foods, such as hot cakes, cookies, doughnuts and spaghetti, using 10% soy flour. These samples were prepared by the Home Living Improvement Institute of the Ministry of Agriculture at our request for this seminar. Those attending saw with their own eyes the various samples and became convinced of the advantage of fortifying wheat flour with soy flour, which made very little difference in appearance and taste.

All members were impressed and expressed their gratitude for being in the meeting and the chance to become familiar with the values of soybeans. A request was made for similar seminars in the future.

JASI sponsored a similar seminar on July 8 in Oita City on Kyushu Island for 70 grammar and high school teachers and principals. I gave an hour lecture followed by an exchange of views. This was one of the most enthusiastic discussions ever experienced. We offered the school lunch bread with soy flour for sampling.

CROP REPORT

Bumper Crop Possible

PLENTY OF moisture, cooler than normal temperatures, a soybean crop maturing at the normal time in the north but somewhat late in the southern part of the soybean belt where it has more time to catch up, combined with a record acreage 15% above last year—that was the picture as the Soybean Digest went to press in late July. Most observers believed it adds up to a crop nearly 100 million bushels more than the 560 million produced last year.

The U. S. Department of Agriculture July 11 crop estimate of 27.1 million acres for beans (23.6 million in 1960) coupled with above average July growing conditions has sharply boosted crop expectations.

Reports from Soybean Digest correspondents:

Arkansas. Keith Bilbrey, county agent, Blytheville (7-20): Most will mature but we do have 5% of crop planted latest in history. Moisture barely adequate now.

Jake Hartz, Jr., Jacob Hartz Seed Co., Stuttgart (7-22): Moisture fair with dry spots. Need rain by Aug. 1. Weeds not as bad as last year but more diseases.

Florida. E. N. Stephens, county agent, Pensacola (7-20): Maturity of crop late due to continued rains. Unable to finish planting and cultivate. Yield outlook less than normal.

Illinois. Russell S. Davis, Clayton (7-21): If this crop matures as it promises now, I wonder who is going to use it all, and how the elevators are going to handle it fast enough. The crop was all planted in about 10 days, should bring the harvest into about the same period. Quite a number of whole farms have been seeded to beans this year. There is a growing tendency for absentee landlords to shift the whole farm to beans. Tenants like this arrangement too. It is an easy crop to handle with big machines, and no problem of fertilizer arrangement with landlord.

Iowa. J. M. Dunleavy and C. R. Weber, Iowa State University plant pathologist and ISU agronomist, on July 6 and 7 made an 815-mile survey covering 29 of Iowa's 99 counties which included the heaviest soybean producing areas. They reported growth averaged normal and soybean development was far more uniform than in 1960. Bean stands were about average but nodulation was poorer than average, believed to be associated with increased root rots. Dr. Weber wrote July 19: "With adequate moisture and normal frosts yield could go to 27.5 bushels per acre. Crop condition looks better than year ago."

Kansas. Elmer L. Buster, Kansas Soya Products Co., Emporia: About 2-3 weeks late on 75% of crop. Moisture conditions ideal and good progress being made. We need this excellent weather to permit plant to gain proper height.

Louisiana. Mark H. Brown, Lake Providence (7-21): Growth later than normal. Crop condition very good to very poor. Large part of crop grassy and more weeds than normal.

Minnesota. John W. Evans, Montevideo (7-21): Many good fields. Others spotted and some yellow. A trip into drought-affected Red River section revealed many farmers who had beans were expecting a good performance now that some rains had come.

Missouri. J. Ross Fleetwood, University of Missouri, Columbia (7-20): Maturity week to 10 days later than normal. Many areas reporting the best prospect in years.

North Carolina. Ed Mann, Washington, N. C. (7-20): Crop somewhat retarded. In many areas has been abandoned because excess rains prevented cultivation.

Ohio. Calvin Heilman, Kenton (7-21): Growth satisfactory, may be too heavy for a good set of beans. Moisture near ideal. Plenty of weeds.

South Carolina. H. W. Perrow, Cameron (7-20): Old beans growing fine. Some just up good after grain. Plenty of rains, grass and weeds.

Ontario. R. H. Peck, River Canard (7-22): Crop condition very good. Some early planted beans which got off to an excellent start are now not much ahead of later planted beans. Moisture varies from very good to on dry side.

HARVESTED ACREAGE OF SOYBEANS: UNITED STATES 1944-61 (1,000 acres)

	Soybeans grown alone	Soybeans for beans		Soybeans grown alone	Soybeans for beans
1944	13,118	10,245	1953	16,394	14,829
1945	13,056	10,740	1954	18,541	17,047
1946	11,706	9,932	1955	19,674	18,620
1947	13,052	11,411	1956	21,700	20,620
1948	11,987	10,682	1957	21,938	20,857
1949	11,872	10,482	1958	25,108	23,993
1950	15,048	13,807	1959	23,349	22,631
1951	15,176	13,615	1960	24,429	23,639
1952	15,958	14,435	1961[1]	27,922	27,100

[1] Preliminary.

SOYBEAN CROP PRODUCTION, JULY 1961 (1,000 acres)

	Acreage grown alone for all purposes			Equivalent solid[1]			Acreage for beans Harvested		For harvest
	Average 1950-59	1960	1961	Average 1950-59	1960	1961	Average 1950-59	1960	1961
N.Y.	8	6	5	8	6	5	6	3	2
N.J.	42	42	39	42	42	39	30	33	31
Pa.	45	23	22	45	23	22	18	7	6
Ohio	1,237	1,529	1,712	1,237	1,529	1,712	1,206	1,514	1,696
Ind.	2,042	2,458	2,876	2,042	2,458	2,876	1,968	2,415	2,841
Ill.	4,404	5,013	5,564	4,404	5,013	5,564	4,318	4,973	5,508
Mich.	178	229	263	178	229	263	169	221	252
Wis.	87	102	126	87	102	126	73	96	116
Minn.	1,994	2,118	2,351	1,994	2,118	2,351	1,940	2,090	2,320
Iowa	2,214	2,615	3,530	2,214	2,615	3,530	2,190	2,599	3,518
Mo.	1,872	2,387	2,578	1,881	2,387	2,578	1,782	2,344	2,526
N. Dak.	113	182	211	113	182	211	108	176	202
S.Dak.	157	102	128	157	102	128	152	100	124
Nebr.	136	150	260	136	150	260	131	149	250
Kans.	453	594	713	453	594	713	397	586	702
Del.	111	194	210	111	194	210	106	189	204
Md.	155	238	276	155	238	276	138	225	266
Va.	254	337	371	275	347	379	213	320	352
W.Va.	8	6	6	8	6	6	....	....	....
N.C.	448	626	676	495	653	698	347	529	596
S.C.	253	542	607	293	580	637	218	499	559
Ga.	94	106	108	129	146	146	50	75	76
Fla.	28	35	42	28	35	42	24	30	36
Ky.	210	260	260	214	260	260	136	199	201
Tenn.	336	478	502	372	492	512	240	394	415
Ala.	150	155	174	152	155	174	100	133	152
Miss.	704	983	1,160	728	996	1,171	588	916	1,092
Ark.	1,297	2,440	2,611	1,334	2,448	2,615	1,231	2,409	2,578
La.	158	258	284	251	308	324	98	216	248
Okla.	76	137	160	76	137	160	51	124	145
Texas	23	84	97	23	84	97	17	75	86
U.S.	19,289	24,429	27,922	19,635	24,629	28,085	18,045	23,639	27,100

[1] Acres grown alone, plus one-half the interplanted acres.

INTERPLANTED ACREAGE

	Average 1950-59	1960	1961		Average 1950-59	1960	1961
Va.	42	19	16	Tenn.	71	28	20
N.C.	94	54	44	Miss.	50	26	22
S.C.	80	76	60	Ark.	72	15	8
Ga.	69	80	76	La.	186	100	80
				U.S.	694	398	326

Crop reporting service, U. S. Department of Agriculture.

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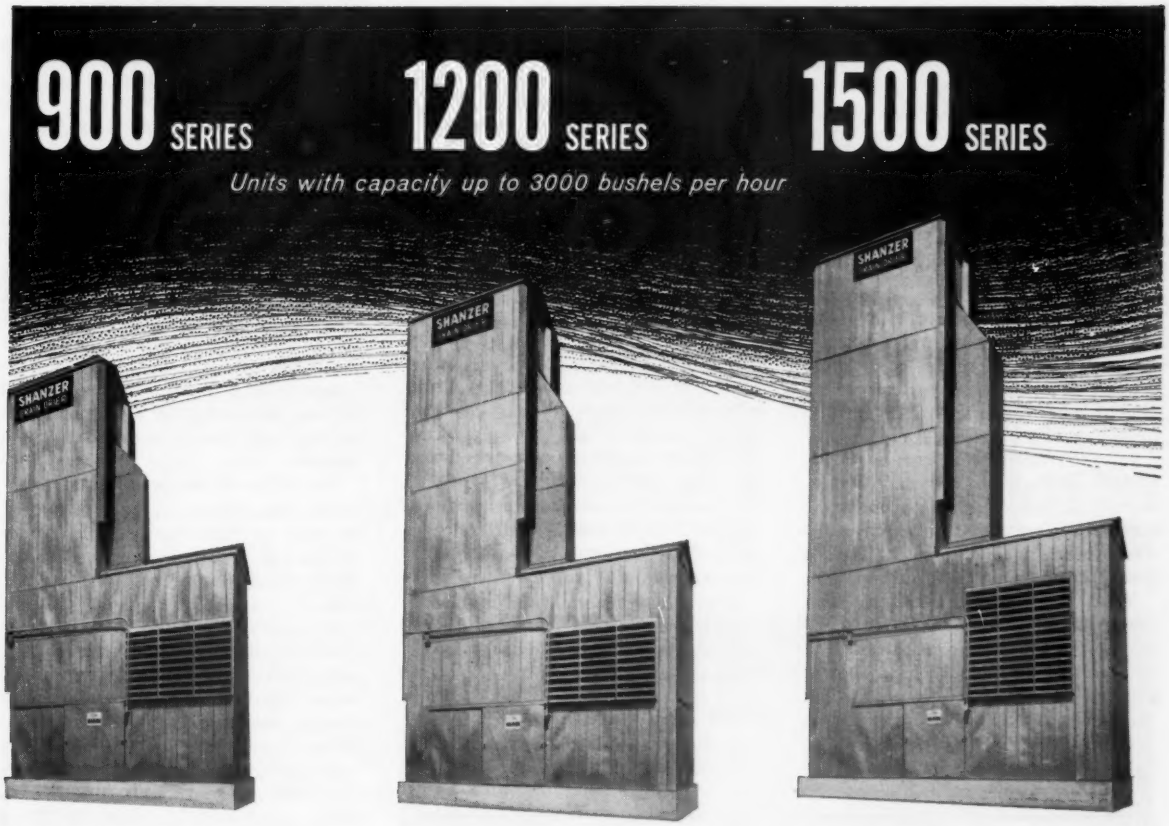

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Can Move All 1961 Crop?

By GEORGE PETER

Washington correspondent for the Soybean Digest

YOU CAN EXPECT more zigs and zags in the picture the early part of this bean-crop season than at the same time last year. Yet, on the basis of the best data available so far, we can find little reason for it—so early, at least.

Put it down to fear and other forms of breathless excitement over the unknown, for one thing. The rest of whatever jumpiness is ahead will be caused by the bulls and the bears.

Look at the Figures

Pending the USDA Aug. 10 report of first production estimates, the highest production talked about the most has been 650 million bushels. This was based on the simple arithmetic of multiplying this year's first acreage estimate of 27 million by last year's yield of 24 bushels.

The 650 million bushels is not a USDA estimate as occasionally reported. USDA has had to use some kind of "working" figures in planning ahead. This figure has ranged from 625 million to 650 million.

What the new production estimates mean is an increase in supplies of about 78 million bushels for the 1961-62 season as follows: 650 million top, plus 10 million carryover by next October, also top. Subtract from the total of 660 million bushels last year's total supplies of 582 million bushels.

So it adds up to this: A lot of people we have talked to and whose writings we have read are afraid of an increase in the supply of about 12%.

USDA Unshaken

USDA outlookers are unshaken over the record supply prospects. They will point to the fact that the Administration planned the bigger supply through the increased price support, the feed grains cutback program, and urgent stepped-up appropriations for the Food for Peace program.

With nearly the last bushel of last year's beans about gone by this October, USDA sees no trouble at all in an additional 78 million bushels. A recent official checkup shows that as P. L. 480 exports increase, the cash export market also increases. With barely a bean of last season's crop to be left by summer's end, USDA will tell you *you can't increase exports if you haven't got the supplies.*

There is even some talk unofficially—of how to go about getting further increases in production if supplies are too tight the coming season.

CEA Alerted

Commodity Exchange Authority will be keeping a weather eye open 1961-62 for possible skullduggery involving soybean futures. The past season's ups and downs are responsible, chiefly.

This is nothing new for CEA, but it is well to take a look between the lines of its season's end report of futures activity. The year rates as a record for total transactions in the 23-year span of CEA statistics with nearly half the transactions soybeans.

The value of trading set new records, too, reflecting price changes as well as the number of transactions—$52 billion worth, nearly 100% greater than for the previous year.

It is easy to see that officials are reflecting the feeling of some of the trade that "undue" speculative forces were somewhere at work the past season, particularly on soybean futures.

Officials also have in mind that the 1960 crop turned out to be worth a bit over $1 billion to farmers, but in the hopped-up activity of the futures market the value of the trading reached around $35 billion.

For the past several seasons, most soybean trading has been through normal commercial channels.

Grain Division Reorganizes

Reorganization of Agricultural Marketing Service's grain division will become effective Sept. 1. Eight area offices will be created to supervise inspection of grains and soybeans in each area instead of concentrating supervision in one general headquarters office (now at Chicago) and leaving inspection for the most part up to the 35 district offices. Inspectors will still work through the 35 district offices, which will remain, but there will be more supervision overall.

Object of the change is to obtain more man hours of inspection—in short, a stronger inspection force.

1961-Crop Soybean County Price Support Rates Set

THE U. S. DEPARTMENT of Agriculture has announced 1961-crop soybean county support rates.

The rates are based on the 1961-crop national average support price of $2.30 per bushel. This is 45¢ per bushel higher than the 1959-crop support price of $1.85 per bushel.

The method followed in determining the 1961-crop county rates is the same as in previous years. While the 1961 national average price is 45¢ per bushel higher than the 1960 average price, county support rates in Alabama, Delaware, Georgia, Maryland, North Carolina, South Carolina, Tennessee, Virginia and in eight Missouri counties are being increased an additional 1¢ per bushel and in Arkansas, Louisiana and Mississippi an additional 2¢ per bushel. This is to bring support prices in these counties into line with historical price relationships with other areas. No change is being made in the premium-and-discount schedule for soybeans. Terminal rates are not established for soybeans.

Except for moisture content, which cannot be more than 14%, minimum requirements for support eligibility correspond to requirements for grade No. 4 soybeans. Soybeans to be eligible for support under the 1961 operation must be produced in 1961. Producers to be eligible for support on soybeans must also maintain their 1959-60 average acreage of conserving and idle land on the farm in 1961.

Price support will be carried out as in the past through farm and warehouse-storage loans and purchase agreements. Loans and purchase agreements will be available from harvest through Jan. 31, 1962. Maturity date for loans will be May 31, 1962. Earlier maturity dates may be set for specific areas because of local storage conditions.

Following are the ranges for 1961 county support rates for Grade No. 2 soybeans in seven states which accounted for most U. S. production in 1960, compared with 1960 rates (per bushel):

	1961-crop Range of rates Grade No. 2 soybeans	1960-crop Range of rates Grade No. 2 soybeans
Arkansas	$2.29 (all counties)	$1.82 (all counties)
Illinois	2.30 to 2.37	1.85 to 1.92
Indiana	2.28 to 2.35	1.83 to 1.90
Iowa	2.23 to 2.31	1.78 to 1.86
Minnesota	2.16 to 2.25	1.71 to 1.80
Missouri	2.23 to 2.30	1.78 to 1.85
Ohio	2.28 to 2.32	1.83 to 1.87

Copies of the county rates are being sent to State Agricultural Stabilization and Conservation Service (ASCS) offices.

— MARKET STREET —

We invite the readers of THE SOYBEAN DIGEST to use MARKET STREET for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here. Rate 10¢ per word per issue. Minimum insertion $2.00.

HELP WANTED—ENGINEER, preferably Civil, under fifty, with broad industrial experience, designing and estimating wheat, corn and soybean storage and processing facilities. Duties include consultation with clients, technical evaluations, developing design concepts, investigation and reports and construction cost estimating. Must be sensitive to the business aspects of engineering and projects in terms of time and money budgeting essential. Weitz-Hettelsater Engineers, 1911 Baltimore Ave., Kansas City 8, Mo.

SOYBEAN STORAGE IS BEST IN LOW-cost, all-welded, steel hopper bottom and flat tanks. We can give you the best at the world's lowest prices of 13½¢ a bushel complete, erected ready for operation. Write Allied Tank, 1207 Commerce Bldg., Kansas City, Mo.

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WANTED: CHEMICAL ENGINEER. Opportunity for a man having a B.S. degree with major in chemical engineering, and from 2 to 5 years experience in industry. Work involves engineering studies and improvements on existing and new processes for wide range of soybean products. Opening with large, diversified soybean processor. Address Box 158C, the Soybean Digest, Hudson, Iowa.

MISSISSIPPI CERTIFIED GULFROSE seed rice. Come see. Order seed early. Bard Selden, Tunica, Miss.

FOR SALE—ANDERSON EXPELLERS and French screw presses, cookers, driers, 5-high, 48-inch crushing rolls, 36-inch attrition mills, sewing machines, hammermills, cracking rolls, filter presses. Ray L. Jones, 1923 Hayselton Drive, Jefferson City, Mo.

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Ingraham, Simon-Carter President, Has Retired

Charles C. Ingraham

John A. Ingraham

Charles C. Ingraham retired on July 1 from the presidency and active management of **Simon-Carter Co.**, Minneapolis, after 37 years of serving the grain and milling industries in the United States and Canada through this and its predecessor companies, the Hart-Carter and Carter-Mayhew companies.

His first connection with the Carter companies was in Winnipeg, Canada, in 1922, where he established his own firm to develop Canadian business.

When the Simon-Carter Co. was formed in July 1958, consolidating into a new firm the northern division of Hart-Carter Co. and the American interests of Henry Simon Ltd., Mr. Ingraham was elected president.

Succeeding him as president is John A. Ingraham, a nephew, who will continue as president of Hart Emerson Simon Ltd. He joined the then Hart-Emerson Co. Ltd. 13 years ago.

M. L. (Maury) Olson has been elected vice president with the continuing position of general sales manager. William Kalina has been reelected secretary with continuing duties as chief accountant and credit manager.

Maas Appointed by Industrial Machinery

Ellis P. Maas, Elmhurst, Ill., has been appointed north central district representative for **Industrial Machinery Co.**, Fort Worth, Tex., a leading manufacturer of blue steel conveyors and elevating equipment and accessories.

He comes to Industrial Machinery Co. from the Screw Conveyor Corp., Hammond, Ind., with which he had been associated for the past 21 years. During his tenure with the company he had worked in almost every aspect of its operations, from production to purchasing and sales.

In his new assignment Mr. Maas will serve the metropolitan Chicago area, northern Illinois, Wisconsin, Minesota and eastern Iowa.

Ellis P. Maas

Fairchild Represents Aeroglide in Midwest

Continuing expansion of its Emporia, Kans., manufacturing plant and sales office, **Aeroglide Corp.** announces the appointment of Zane C. Fairchild of Lincoln, Nebr., as district representative in the Midwest.

Mr. Fairchild's background fits in well with his new position. He holds a degree in agricultural engineering at the University of Nebraska. Previous experience includes saleswork with J. I. Case Co., managing a feed manufacturing plant, and being sales manager with Notifier Engineering of Lincoln. He was involved in the development and sale of a new-type fire alarm system for elevators until coming with Aeroglide in June.

Zane C. Fairchild

Mr. Fairchild will cover the territory of Nebraska, South Dakota, and the western part of Iowa.

General Mills Closes Rossford, Ohio, Plant

General Mills will close its Rossford, Ohio, soybean operations in mid-August and centralize the company's soybean processing at its Belmond, Iowa, plant, it was announced.

S. D. Andrews, Jr., corporate vice president and general manager of the company's specialty products division, said that economic factors dictated the move.

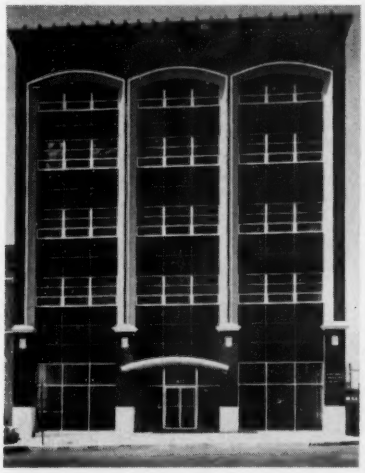
"The soybean meal market in the eastern trunkline area has been gradually deteriorating, and this was the market our Rossford facility was best equipped to serve," Andrews

said. "For a number of years we have looked for a solution to the problem, and we have been unable to find one."

General Mills is basing its future in soybeans on many small-volume specialties which cannot be economically produced at Rossford in the available space, he pointed out.

"We plan to take in new-crop beans at the elevator for storage during the winter months, but these will not be processed by General Mills," Mr. Andrews said.

Remodernization by Lewis Supply Co.



Lewis Supply Co., Memphis, Tenn., machinery and mill supply firm, has completed modernizing its five-story building as shown above. Aluminum and glass windows were combined to replace the old windows, and an aluminum store front replaced the old wooden one.

Howard A. Jackson is owner, Gene Johnson president, and George L. Frank vice president, sales.

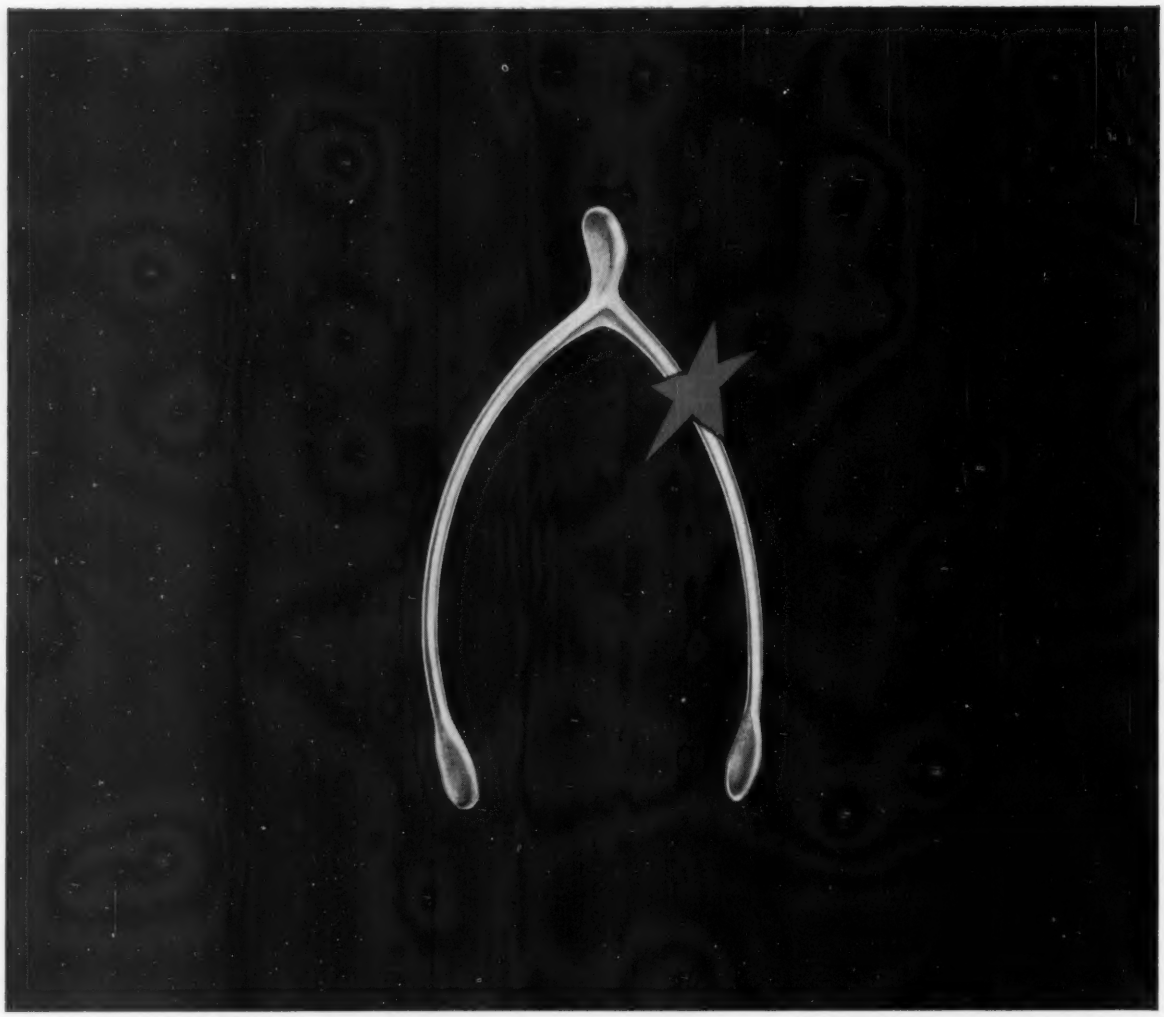
Mr. Lewis purchased the Lewis Supply Co. from T. W. Lewis in 1946. The firm serves the entire Midsouth.

Plans are being completed for the formation in Italy of a joint company for the manufacture of Master Mix feeds, according to an announcement by Dale W. McMillen, Jr., president of **Central Soya.** The new corporation, Central Soya-Seriom, SPA, will have its headquarters in Milan, Italy.

Spencer Kellogg and Sons, Inc., Buffalo, N. Y. announces the appointment and promotion of Dan K. Farstad to director of technical sales and services. He was formerly manager of the technical service department in the research center, and now headquarters in the main office of the company at 120 Delaware Ave.

New Staley Research Center

NEW STALEY Research Center opened recently at Decatur, Ill., by A. E. Staley Manufacturing Co., is three-wing, 108,000-square-foot structure, dedicated to developing new and more useful corn, soybean and chemical products for the nation's household consumers, food, paper, textile, chemical and other industries. Staley research program has been doubled and redoubled in the last few years.



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Japan Raises Duty on Soybeans

JAPAN. The government raised the import duty on soybeans from 10% to 13% on July 1, the same date beans were placed on the automatic approval list. The action was taken to protect domestic soybeans in connection with liberalization.

Although the Diet adjourned in June without taking action to raise the import duty, which covers soybeans imported from GATT countries, the government subsequently did so, with the intention of requesting ex post facto approval from the Diet at its next session. Authority for the action stems from the new Japanese tariff law, according to USDA's Foreign Agricultural Service.

BRAZIL. Brazil's expanded soybean production may permit the resumption of 1 to 2 million bushels of exports, according to FAS.

Soybean production in 1961 in Rio Grande do Sul, where over 90% of the Brazilian soybeans are grown, is now estimated at an alltime high of about 8.1 million bushels, compared with 7.1 million bushels in 1960 for the entire country.

A sharp increase in planted area, stimulated by high soybean prices in 1960 and encouraged by processors, took place on diverted wheat lands. Also, distribution of new and improved varieties of guaranteed seed was made by the State Secretariat of Agriculture.

SUEZ CANAL. Shipments of soybeans through the Suez Canal from October 1960 through March 1961 totaled 7 million bushels compared with 22.6 million bushels in the same period of 1959-60, according to FAS. Communist China's shipments in March through the Canal dropped to 955,710 bushels, about a third the volume of a year ago.

According to reports from the trade, April shipments of soybeans through Suez were 440,000 bushels and in May 183,000 bushels, which would bring the October-May movement to 7.6 million bushels compared with 40 million bushels a year earlier.

Reflecting the smaller movement of soybeans, total oilseed shipments in the first half (October-March) of the current marketing year were 898,300 tons compared to 1.3 million tons for the same period a year ago.

MAINLAND CHINA. Communist China will make no deliveries of soybeans, peanuts, and edible vegetable oils to the U.S.S.R. in 1961, according to USSR Foreign Trade, an official publication, says FAS.

Apparently imports of these commodities by the Soviets in 1960 were less than in 1959 when 639,000 metric tons (23.5 million bushels) of soybeans, about 35,000 tons of peanuts, and about 70,000 tons of edible vegetable oils were imported from China.

COPRA, COCONUT OIL. The outlook for larger world copra and coconut oil exports in 1961 is presently not bright, according to FAS. No increase from 1960 is expected from the Philippines and total world exports may decline.

World copra and coconut oil exports in 1960 totaled 1,140,000 long tons, oil or oil equivalent, almost 15% higher than the 993,000 tons of 1959 and 4% above 1958. However, while world output recuperated from drought in 1960, copra and coconut oil trade remained almost 6% under the average 1,377,000 tons of 1957.

COLOMBIA. A support price of $3 per bushel (800 pesos per metric ton) has been set on soybeans by the government of Colombia, according to USDA's Foreign Agricultural Service. This is a revision from the $3.75 support price set last December, to avoid stimulating soybean production at this time.

FISH OILS. World exports of fish oils (including fish liver oils) reached an alltime high of 300,000 short tons in 1960, reflecting record shipments from Iceland, Peru, and the Republic of South Africa, according to FAS. This was an increase of 35,000 tons from the previous high of 1959.

Iceland's exports of fish oil in 1960 were nearly triple the shipments of the previous year. Peru's fish oil exports continued to rise sharply in 1960, being double those of 1959.

CANADA. Canadian farmers in the prairie provinces have planted 2,425,000 acres to flaxseed and 745,700 to rapeseed, 5% and 2% respectively below 1960 plantings, according to Dominion Bureau of Statistics estimates.

Because of the drought, oilseed crop prospects continued to deteriorate over wide areas of all three prairie provinces—Manitoba, Saskatchewan and Alberta—in July.

SESAME. World production of sesame seed in 1960 is estimated at 1.6 million short tons, down 4% from the previous year and 18% below the 1950-54 average, according to FAS. The smaller 1960 harvest was mainly the result of lower outturns in India and Communist China which together accounted for half of the world outturn in 1960. Production in North America is estimated at 168,000 tons, of which Mexico produced a record 146,000 tons.

EXPORT ORDERS. U. S. Department of Agriculture announced the following purchase authorizations and agreements for U. S. soybean products under Public Law 480 during July:

July 1 and 5, an amendment to the Apr. 28 Food for Peace agreement with Yugoslavia to finance the sale of an additional $1.4 million worth of cottonseed or soybean oil (about 8.8 million pounds), purchase authorizations to be announced later.

July 5, because of the maritime strike, extension of the delivery date from June 30 to July 31 on p. a. 29-16 to Ecuador for cottonseed or soybean oil.

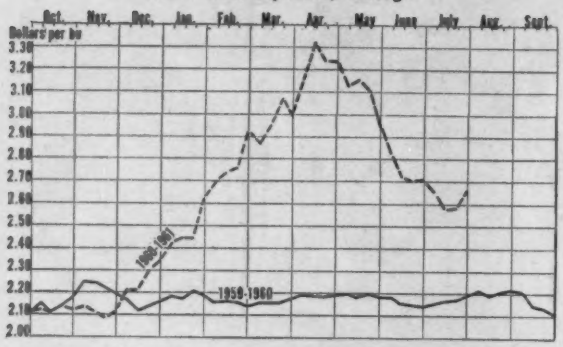
July 17, p. a. 32-10 to Iran to finance the purchase of up to $325,000 worth of soybean or cottonseed oil (about 750 metric tons) from U. S. suppliers under the Food for Peace program. Sales contracts between July 24 and Aug. 31, shipments between July 24 and Sept. 30.

July 19, p. a. 11-48 to Yugoslavia to finance purchase of up to $1.4 million worth (about 4,900 metric tons) of U. S. cottonseed or soybean oil under the Food for Peace program. Sales contracts between July 26 and Oct. 31, shipments between July 26 and Nov. 30.

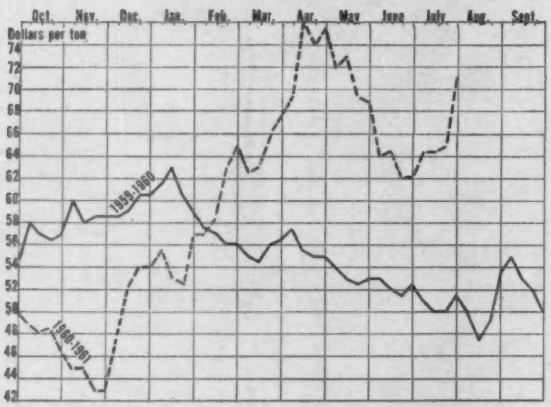
July 21, a Food for Peace agreement with the Republic of China (Taiwan), providing for the sale of $600,000 worth of vegetable oil, about 3.3 million pounds. Purchase authorizations will be announced later. The agreement provides that 10% of the new Taiwan dollars obtained as sales proceeds will be set aside for loans to U. S. and Chinese private enterprise by the Export-Import Bank of Washington, D. C.

TRENDS AT A GLANCE (Weekly Close)

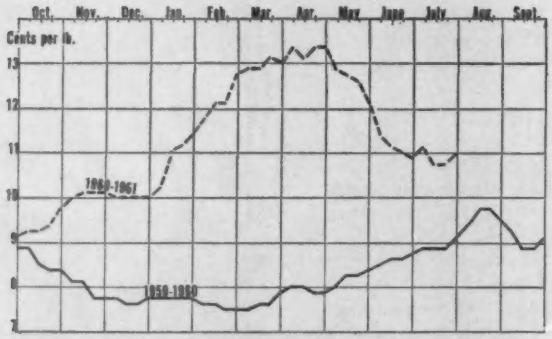
No. 1 Cash Soybeans, Chicago



Bulk Soybean Meal, Decatur



Crude Soybean Oil, Tankers



CASH PRICES, JULY 1961*

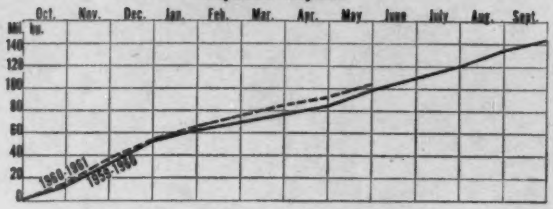
July	No. 1 yellow soybeans Chicago	Bulk soybean meal Decatur	Soybean oil Decatur	Cottonseed oil Mississippi Valley	Coconut oil Pacific Coast	Lard Chicago
3	$2.77½	$65.00	$.11½	$.13⅝	$.11½	$.0965
5	2.76¼	65.50	.11½	.13⅝	.11½	.0972
6	2.75½	65.00	.11⅜	.13⅝	.11½	.0950
7	2.67¼	64.50	.11⅛	.13¾	.11⅝	.0935
10	2.64½	64.00	.10⅞	.13½	.11⅝	.0935
11	2.68½	64.50	.11	.13⅝	.11¾	.0917
12	2.64¼	64.50	.10¾	.13⅝	.11¾	.0902
13	2.62¼	66.00	.10⅞	.13⅝	.11¾	.0915
14	2.58½	64.50	.10¾	.13½	.11¾	.0992
17	2.56½	64.50	.10½	.13¼	.11¾	.0880
18	2.58¾	64.50	.10¾	.13	.11¾	.0880
19	2.59¾	65.00	.10⅞	.13⅛	.11½	.0900
20	2.59¼	65.00	.10⅝	.13	.11½	.0905
21	2.58½	65.00	.10¾	.13⅛	.11½	.0917
24	2.60½	66.00	.10⅞	.13¼	.11⅝	.0930
25	2.70¾	68.50	.11⅛	.13½	.11¾	.0945
26	2.75¼	70.00	.11	.13¼	.12	.0930
27	2.74	70.00	.11	.13¼	.11⅞	.0945
28	2.66½	71.00	.11	.13½	.11⅞	.0960
31	2.64½	71.00	.11	.13⅝	.11⅞	.0967

* From Wall Street Journal, Chicago.

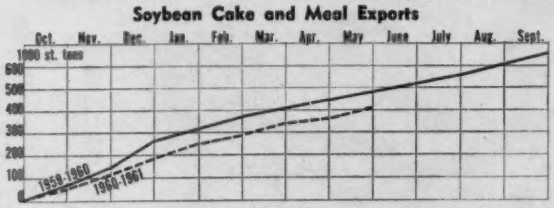
EXPORTS 1959-60 AND 1960-61

Cumulative year beginning Oct. 1

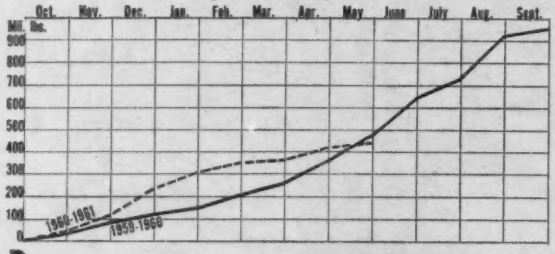
Soybean Exports



Soybean Cake and Meal Exports



Soybean Oil Exports

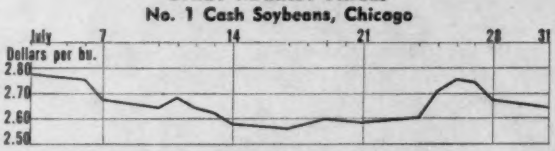


1959 AND 1960 SOYBEAN CROPS

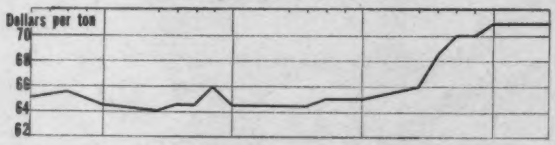
	1960-61	1959-60
Total soybeans placed under support as of June 30	25,617,000 bu.	52,379,385 bu.
Loans repaid as of June 30	25,084,000 bu.	39,728,264 bu.
Total delivered as of June 30	00	3,378,846 bu.
Soybeans crushed Oct. 1-June 30	317,590,000 bu.	302,130,000 bu.
Soybeans exported Oct. 1-June 30	110,512,000 bu.	112,371,000 bu.
Balance on July 1 for processing, export or carryover	94,119,000 bu.	135,913,000 bu.
Total soybeans inspected for overseas export plus lake shipments to Canada Oct. 1-July 28	120,143,797 bu.	120,450,743 bu.

DAILY MARKET PRICES

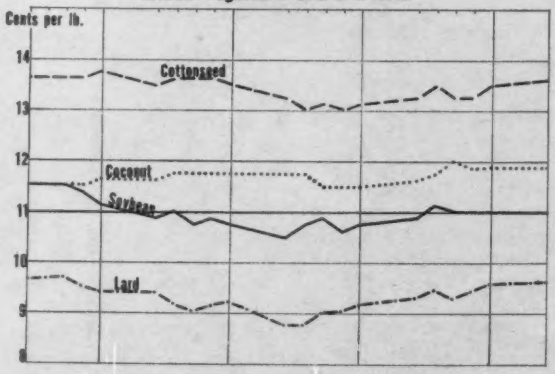
No. 1 Cash Soybeans, Chicago



Bulk Soybean Meal, Decatur



Crude Vegetable Oils and Lard



CASE sets the pace...with a blockbuster combine deal that can save you up to

ONE THOUSAND DOLLARS!

Think of it!—for a limited time, and RIGHT in time for your soybean harvest, you can buy a Case 800 self-propelled combine *for as much as $1,000 less than you normally would pay for it!*

Why? Because *special factory allowances* permit Case dealers to out-trade anybody in the business!

They're loaded for a bear of a bargain. And they're ready to deal high, wide and handsome with you—just come and see!

Here are the highlights of what you'll get for a *record low price:*

- **A big-capacity combine** for medium and large acreage, with a 10, 12 or 14-foot header. Interchangeable corn head available.
- **A 500-stroke-per-minute sickle** for clean, fast cutting that loses less beans.
- **A strong, torsion-tube header** that keeps all cutting parts in perfect alignment.
- **A big, extra-heavy 32″ rub-bar or spike-tooth cylinder** that bulls through the heaviest crops without slackening speed.
- **Exclusive on-the-go control** of concave clearance and cylinder speed* delivers a better sample with less dockage.
- **Long, 5-step walkers** with plenty of overhead clearance.
- **A big sump-type grain elevator** that moves big volumes fast, yet gently.
- **80-inch front, 66-inch rear treads** straddle 40-inch bean rows perfectly . . . handle easier in rough, muddy fields.
- **Case gasoline, diesel or LP-gas engines** with abundant pulling and threshing power.

In addition—for large acreage and custom work, there is a special group of Case 1000 combines available at equally sensational savings. 12 to 18-foot cut . . . 42-inch cylinder.

There's a lot more to learn about a Case combine. About Case features. About Case stamina and economy. And there never was a better time to do it.

Go see your Case dealer *now* while his king-size allowances are still in force!

*Cylinder speed control optional.

for the **BIG** *deal, see*

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IN THE MARKETS

STOCKS. Soybean stocks in all storage positions on July 1 totaled 94 million bushels, down sharply from the 136 million bushels on hand a year ago and the lowest for the date since July 1957, the U. S. Department of Agriculture reports. Most stocks are in the off-farm positions as farm stocks on July 1 amounted to only 11.5 million bushels.

Stocks on July 1 indicate a disappearance during the 9-month period October 1960-June 1961 of 488 million bushels from a supply of 582 million bushels (carryover of 23.2 million plus preliminary production of 558.8 million bushels). During the period 317 million bushels were processed for oil and 110 million bushels were exported. Seed and feed amounted to about 35 million. In addition a quantity of new-crop beans were crushed prior to Oct. 1, and there is always considerable loss from a crop of this size.

Stocks of soybeans, July 1, 1961, with comparisons (1,000 bu.)

	July 1 av. 1950-59	July 1, 1960	Apr. 1, 1961	July 1, 1961
On farms[1]	18,634	41,758	73,070	11,503
Commodity Credit Corp.[2]	211	407	16	0
Processing plants[4]	29,163	43,050	97,343	49,767
Mills, elev. & whses.[1 3]	24,432	50,698	94,383	32,849
Total	72,440	135,913	264,812	94,119

[1] Estimates of the crop reporting board. [2] Owned by CCC and stored in bins or other storages owned or controlled by CCC; other CCC-owned grain is included in the estimates by positions. [3] All off-farm storages not otherwise designated, including flour mills and terminal elevators. [4] Firms reporting crushings and stocks of soybeans to the Bureau of the Census.

Soybeans: Total and off-farm stocks, July 1 and Apr. 1 (1,000 bu.)

	Off-farm total[1]			Total all positions[2]		
	July 1, 1960	Apr. 1, 1961	July 1, 1961	July 1, 1960	Apr. 1, 1961	July 1, 1961
Ohio	5,544	15,170	6,393	7,726	20,469	7,339
Ind.	3,742	10,639	5,678	8,509	19,116	7,634
Ill.	20,579	46,772	20,964	31,802	60,995	22,903
Minn.	9,379	17,065	7,330	15,717	26,261	9,002
Iowa	22,885	21,245	9,315	32,929	36,111	11,342
S. Dak.	340	202	90	530	661	158
N. C.	1,953	3,398	1,540	2,094	4,350	1,897
Tenn.	4,760	12,516	5,627	4,844	12,949	5,714
Miss.	979	5,603	630	1,413	6,840	836
Ark.	2,874	*	*	3,144	*	*
Other	21,120	59,132	25,049	27,205	77,060	27,294
U. S.	94,155	191,742	82,616	135,913	264,812	94,119

* Included in other states to avoid disclosing individual operations. [1] Includes stocks at mills, elevators and warehouses, terminals and those owned by Commodity Credit Corp. which are in bins and other storages under CCC control. [2] Off-farm total plus farm stocks.

STOCKS. Stocks of soybeans on farms July 1 were estimated at 11.5 million bushels, 72% below July 1 a year ago and 38% below average, according to USDA's crop reporting service. Planting of this year's soybean acreage was practically complete by July 1 and unusually favorable prices for beans provided the incentive for farmers to dispose of their holdings.

About two-thirds of the farm stocks are in the four states of Indiana, Illinois, Minnesota and Iowa.

Soybean stocks on farms on July 1 (1,000 bu.)

	Average 1950-59	1960	1961		Average 1950-59	1960	1961
N.Y.	10	5	3	Md.	55	46	58
N.J.	28	31	24	Va.	98	298	144
Pa.	28	21	6	N.C.	188	141	357
Ohio	1,262	2,182	946	S.C.	60	433	243
Ind.	2,130	4,767	1,956	Ga.	15	23	45
Ill.	4,535	11,223	1,939	Fla.	2	15	....
Mich.	166	318	23	Ky.	76	126	44
Wis.	58	183	77	Tenn.	61	84	87
Minn.	3,333	6,338	1,672	Ala.	19	57	64
Iowa	4,678	10,044	2,027	Miss.	142	434	206
Mo.	866	3,496	756	Ark.	237	270	253
N.Dak	118	153	23	La.	13	91	104
S.Dak.	163	190	68	Okla.	9	23	37
Nebr.	142	456	63	Texas	5	20	40
Kans.	82	273	193	U. S.	18,634	41,758	11,503
Del.	56	17	45				

PRICES. Average price for soybeans received by farmers, effective parity, and support rates, reported by Agricultural Marketing Service (dollars per bushel).

Average farm price			Effective parity	Av. price as percent of parity	National average price support rate		
June 15, 1961	May 15, 1961	June 15, 1960	June 15, 1961	June 15, 1961	1961 crop	1960 crop	1959 crop
2.60	2.96	1.97	2.88	90	2.30	1.85	1.85

Average farm and parity prices from crop reporting board.

Soybean prices compared with market value of soybean oil and meal

	Soybean oil		Soybean meal		Value of oil and meal from bushel of soybeans[1]	Market price No. 1 yellow soybeans Ill. pts.	Spread between soybean price and value of oil and meal
	Average price at crushing plant Cts. per pound	Value from bu. of soybeans[1] Dollars	Bulk price at Decatur Dollars per ton	Value from bu. of soybeans[1] Dollars	Dollars	Dollars per bu.	Cents
June 1961[2]	11.4	1.25	63.85	1.50	2.75	2.74	1
May 1961	12.6	1.39	71.00	1.67	3.06	3.07	—1
Apr. 1961	13.4	1.47	73.10	1.72	3.19	3.14	5
Mar. 1961	13.0	1.43	64.45	1.51	2.94	2.88	6
Feb. 1961	12.1	1.33	61.50	1.45	2.78	2.66	12
June 1960	8.6	0.95	52.50	1.23	2.18	2.06	12

[1] Based on assumption that a bushel of soybeans yields 11 pounds of oil and 47 pounds of meal. [2] Preliminary. Note: This table is for statistical comparison only. It does not reflect actual operating margins since prices are simple averages and do not take into account location differentials or actual purchases and sales of soybeans, soybean oil or soybean meal. From USDA's Agricultural Marketing Service.

EXPORTS. Preliminary data on U. S. exports of soybeans, soybean and cottonseed oils, and soybean and cottonseed cakes and meals for May 1961, with comparable data for May 1960 and cumulative totals for October-May in the marketing years 1959-60 and 1960-61, by USDA's Foreign Agricultural Service.

	Unit	May 1960[1]	May 1961	Ocober-May[1] 1959-60	Ocober-May[1] 1960-61
Soybeans	bu.	14,266,823	11,440,429	98,163,817	104,015,898
Soybean oil:					
Crude	lb.	80,198,329	2,921,144	319,966,119	293,406,580
Refined but not further processed	lb.	3,097,948	16,824,940	46,092,120	48,737,295
Refined, deodorized and hydrogenated	lb.	26,463,662	2,314,914	108,976,562	102,479,978
Cottonseed oil:					
Crude	lb.	19,179,961	7,115,948	263,880,205	174,577,886
Refined but not further processed	lb.	5,557,442	28,022,168	128,142,048	88,211,590
Refined, deodorized and hydrogenated	lb.	3,078,524	2,754,821	24,632,818	33,095,019
Cottonseed cake and meal	s.t.	405	550	123,002	37,129
Soybean cake and meal	s.t.	37,795	42,110	479,674	401,663

[1] Includes any revisions made by the Bureau of the Census.

Exports under Title I, Public Law 480, by commodity, July 1960-June 1961

	June 1961		July 1960-June 1961	
	Metric tons	Pounds	Metric tons	Pounds
Cottonseed oil	578	1,273,000	37,869	83,488,000
Soybean oil	2,578	5,683,000	241,851	533,191,000

Soybean cake and meal: U. S. exports by country of destination, October-May, 1960-61 and 1959-60 (tons)

	Oct. 1960-May 1961	Oct. 1959-May 1960		Oct. 1960-May 1961	Oct. 1959-May 1960
Canada	108,898	130,661	Belgium and Luxembourg	45,761	58,806
Mexico	11,736	9,450	France	17,829	8,838
Cuba	5,300	12,483	West Germany	42,586	58,828
Venezuela	4,318	4,810	Spain	1,817	34,335
Sweden	30	2,044	Italy	7,163	29,552
Norway	9,879	9,150	Australia	5,257	110
Denmark	27,937	9,907	Philippines	12,182	8,581
United Kingdom	202	1,113	Japan	34,824	495
Ireland	—	1,653	Other	13,942	30,073
Netherlands	53,202	68,785	Total	402,863	479,674

Bureau of the Census.

Soybeans: Inspections for export by coastal areas and country of destination, June 1961 (1,000 bu.)

Lake Ports		Gulf	
Canada	1,836	Netherlands	410
Norway	134	West Germany	418
Netherlands	147	Korea	87
Italy	111	Taiwan (Formosa)	375
Subtotal	2,228	Japan	2,454
Atlantic		Okinawa	62
Taiwan (Formosa)	115	Subtotal	3,806
Other	78	Grand total	6,227
Subtotal	193	Total Jan.-June 1961	54,897
		Total Jan.-June 1960	58,291

Based on weekly reports of inspections for export by licensed inspectors and does not include rail or truck movement to Canada or Mexico. In some cases, the ultimate destination of the soybeans exported is not shown on the inspection reports. Therefore, the quantity for each country may vary from official Census data which are based on custom declarations. Agricultural Marketing Service.

Soybeans: Inspections for export by ports and areas, June 1961 (1,000 bu.)

Lake Ports			
Superior	593	Norfolk	97
Chicago	820	Subtotal	193
Saginaw	395	**Gulf**	
Toledo	318	Mobile	229
Milwaukee	102	New Orleans	2,528
Subtotal	2,228	Port Allen	1,049
		Subtotal	3,806
Atlantic		Totals	
Philadelphia	18	June 1961	6,227
Baltimore	78	Jan.-June 1961	54,897
		Jan.-June 1960	58,291

Based on weekly reports of inspections for export by licensed inspectors and does not include rail and truck movement to Canada or Mexico. Agricultural Marketing Service.

FACTORY USE VEGETABLE OILS for April and May 1961. Reported by Bureau of the Census.

Edible oils: Production, consumption, and factory and warehouse stocks (million lbs.)

	Cottonseed oil		Soybean oil	
Production:	May	April	May	April
Crude oils	100.8	137.7	377.0	362.9
Refined oils (once refined)[1]	118.6	138.2	313.3	291.2
Consumption in refining[1]	128.4	149.1	324.7	301.8
Consumption in selected edible and inedible products, total[2]	108.6	107.8	289.5	261.8
Consumption in edible products, total	108.0	107.3	271.7	245.5
Baking or frying fats	28.4	30.6	90.0	86.0
Salad or cooking oil	68.7	63.0	92.8	78.4
Margarine	10.0	12.6	87.3	79.0
Other edible products[3]	0.9	1.1	1.6	2.1
Stocks, end of month, total[2]	379.1	432.6	703.0	*675.8
Crude oils	66.5	96.8	467.5	461.4
Refined oils	312.6	335.8	235.5	*214.4

* Revised. [1] Production of refined oils covers only once-refined oil. Degummed soybean oil is reported as crude oil. [2] Includes hydrogenated vegetable oils "in process," (e.g. refined cottonseed includes stocks of stearin). [3] Includes confectioners fats.

Consumption of vegetable oil foots in fatty acids (million lbs.)

Total consumption[1]				Used in fatty acids				Percent used in fatty acids			
May		Cum.: Jan.-May		May		Cum.: Jan.-May		May		Cum.: Jan.-May	
1961	1960	1961	1960	1961	1960	1961	1960	1961	1960	1961	1960
10.9	10.1	54.4	55.0	5.4	5.8	31.7	33.5	50%	57%	58%	61%

[1] Excluding amounts consumed in refining. U. S. Bureau of the Census.

MELLORINE. Production of mellorine and other frozen desserts made with fats and oils other than milkfat in June was estimated at 5,390,000 gallons, according to Agricultural Marketing Service. This exceeded the previous record high for the month of June 1960 by 1%. The January-June total this year of 24,520,000 gallons was 9% above the first half of last year and 38% above the 5-year average.

Production of "mellorine-type" frozen desserts, United States, 1961

	1955-59 average[1]	1959[1]	1960[1]	Estimated 1961[2]	Change from: 1955-59 av.	Change from: 1960
	Thousand gallons				Percent	
January	2,012	2,254	2,536	2,850	+42	+12
February	2,188	2,444	2,912	3,100	+42	+ 6
March	2,805	3,338	3,452	4,140	+48	+20
April	3,076	3,601	3,824	4,055	+32	+ 6
May	3,723	4,146	4,343	4,985	+34	+15
June	4,026	4,825	5,329	5,390	+34	+ 1
6-month total	17,830	20,608	22,396	24,520	+38	+ 9

[1] From enumerations. [2] Revised January-May.

FUTURES TRADING. A high tide of speculative activity swept the agricultural futures markets in the year ended June 30, 1961, the U. S. Department of Agriculture reported. Nearly half the transactions in 1960-61 were in soybeans.

In soybeans the hedging commitments as well as the

speculative positions were at the highest levels on record. Other commodities with higher than average levels of open contracts during 1960-61 included cottonseed oil on the New York Produce Exchange and soybean oil and meal on the Chicago Board of Trade.

Estimated number of transactions and value of futures trading, all contract markets combined, in commodities under the Commodity Exchange Act, fiscal years ended June 30, 1960, and June 30, 1961

	Thousands of transactions[1]		Value of trading[2] (Million dollars)	
	1959-60	1960-61	1959-60	1960-61
Soybeans	2,592	5,607	12,184.7	34,054.4
Cottonseed oil	107	178	398.4	750.0
Soybean oil	271	780	673.8	2,570.9
Lard	26	33	49.6	72.4
Cottonseed meal	2	(3)	4.3	1.0
Soybean meal	350	508	985.5	1,563.9

[1] Estimated number of purchases plus sales in terms of contract units. [2] Estimated from monthly volume of trading on all contract markets and average prices on principal markets. [3] Less than 500 transactions.

Average month-end open contracts and total volume of futures trading, all contract markets combined, by commodities, fiscal years ended June 30, 1960, and June 30, 1961

	Open contracts			Volume of trading		
	1959-60	1960-61	Pct. increase or decrease	1959-60	1960-61	Pct. increase or decrease
Soybeans[1]	134,595	197,247	+46.5	5,612,517	12,593,240	+124.4
Cottonseed oil[2]	234,005	243,635	+ 4.1	3,212,280	5,339,640	+ 66.2
Soybean oil[2]	427,735	602,475	+40.9	8,123,820	23,401,980	+188.1
Lard[2]	30,208	21,777	—27.9	543,380	658,080	+ 21.1
Cottonseed meal[3]	7.4	1.5	—79.7	80.4	19.8	— 75.4
Soybean meal[3]	577.9	741.9	+28.4	17,499.0	25,388.9	+ 45.1

[1] 1,000 bu. [2] 1,000 lbs. [3] 1,000 tons.

INSPECTIONS. Inspected soybean receipts, by grades and percent, reported by Agricultural Marketing Service.[1]

	June 1961[2] 1,000 bu.	Pct.	May 1961 1,000 bu.	Pct.	June 1960 1,000 bu.	Pct.	Oct. 1960-June 1961 1,000 bu.	Pct.	Oct. 1959-June 1960 1,000 bu.	Pct.
No. 1	3,127	24	3,640	25	5,909	21	96,952	26	64,695	19
No. 2	6,226	49	7,025	49	16,956	59	174,884	46	176,945	51
No. 3	2,171	17	2,782	19	4,087	14	71,706	19	74,007	21
No. 4	864	7	734	5	1,215	4	26,143	7	20,922	6
Sample	361	3	215	2	660	2	8,337	2	9,456	3
Total	12,749	100	14,396	100	28,827	100	378,022	100	346,025	100

[1] Carlot receipts have been converted to bushels on the basis that 1 carlot equals 1,800 bushels. [2] Of the June receipts, 1,800 bushels were mixed and the remainder yellow soybeans. Inspections of soybeans in June included 3,675,000 bushels as cargo lots, 1,000,891 bushels as truck receipts, and the balance as carlot receipts. Based on reports of inspections by licensed inspectors at all markets.

PROCESSING OPERATIONS. Reported by Bureau of the Census for May and June 1961.

Primary products except crude oil at crude oil mill locations: Production, shipments and transfers, and stock, June 1961-May 1961 (1,000 short tons)

	Production		Shipments and transfers		Stocks end of month	
	June 1961	May 1961	June 1961	May 1961	June 30, 1961	May 31, 1961
Soybean:						
Cake and meal	734.7	781.1	751.9	784.9	195.3	212.5
Millfeed (hull meal)	14.8	17.4	16.5	15.9	8.7	10.4

Soybeans: Net receipts, crushings, and stocks at oil mills, by states, June 1961-May 1961 (1,000 short tons)

	Net receipts at mills[1]		Crushed or used		Stocks at mills	
	June 1961	May 1961	June 1961	May 1961	June 30, 1961	May 31, 1961
U. S.	424.7	445.4	955.6	1,028.9	1,493.0	2,023.9
Arkansas	(2)	(2)	(2)	(2)	(2)	(2)
Illinois	163.8	149.3	273.1	296.0	351.5	460.9
Indiana	41.9	57.1	97.0	95.1	139.0	194.1
Iowa	98.6	114.9	145.8	182.1	211.5	258.8
Minnesota	47.2	40.8	64.0	56.4	91.8	108.5
Mississippi	0.9	(3)	28.7	41.3	15.3	43.0
Missouri	(2)	(2)	(2)	(2)	(2)	(2)
Nebraska	(2)	(2)	(2)	(2)	(2)	(2)
North Carolina	(3)	3.7	11.5	18.9	40.4	51.9
Ohio	50.3	30.6	74.7	83.3	144.9	169.3
Tennessee	13.5	11.6	82.0	77.7	168.1	236.6
All other	8.5	37.4	178.8	178.1	330.5	500.8

Note: Detail figures may not add to totals because of independent rounding. [1] Net receipts for each state are derived from the quantity of beans crushed and net change in stocks. [2] Included in "All other" to avoid disclosure of figures for individual companies. [3] Receipts exceeded by reshipments out of previously acquired stocks.

Soybean products: Production and stocks at oil mill locations, by states, June 1961-May 1961

	Crude oil (millions of pounds)				Cake and meal (thousands of tons)[1]			
	Production		Stocks		Production		Stocks	
	June 1961	May 1961	June 30, 1961	May 31, 1961	June 1961	May 1961	June 30, 1961	May 31, 1961
U. S.	352.8	377.0	140.9	117.4	749.5	798.5	204.0	222.9
Arkansas	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Illinois	103.5	110.7	42.3	37.6	209.6	221.2	60.1	64.5
Indiana	35.3	34.7	18.7	(2)	77.1	75.8	(2)	(2)
Iowa	52.7	65.4	13.8	12.3	117.8	146.7	32.6	34.4
Minnesota	23.3	20.7	7.5	7.5	49.2	43.8	3.3	3.3
Mississippi	11.1	15.0	8.0	3.8	23.2	31.2	7.0	7.5
Missouri	(2)	(2)	2.9	(2)	(2)	(2)	4.1	(2)
Nebraska	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
N. Carolina	4.0	6.5	2.4	2.3	9.2	15.0	1.9	2.6
Ohio	27.0	29.3	9.4	12.0	59.2	64.1	3.8	5.0
Tennessee	30.8	29.6	11.9	12.3	63.8	59.8	5.7	8.2
All other	65.1	65.1	24.0	29.6	140.4	140.9	85.5	97.4

Note: Detail figures may not add to totals because of independent rounding. [1] Includes mill feed (hull meal). [2] Included in "All other" to avoid disclosure of figures for individual companies.

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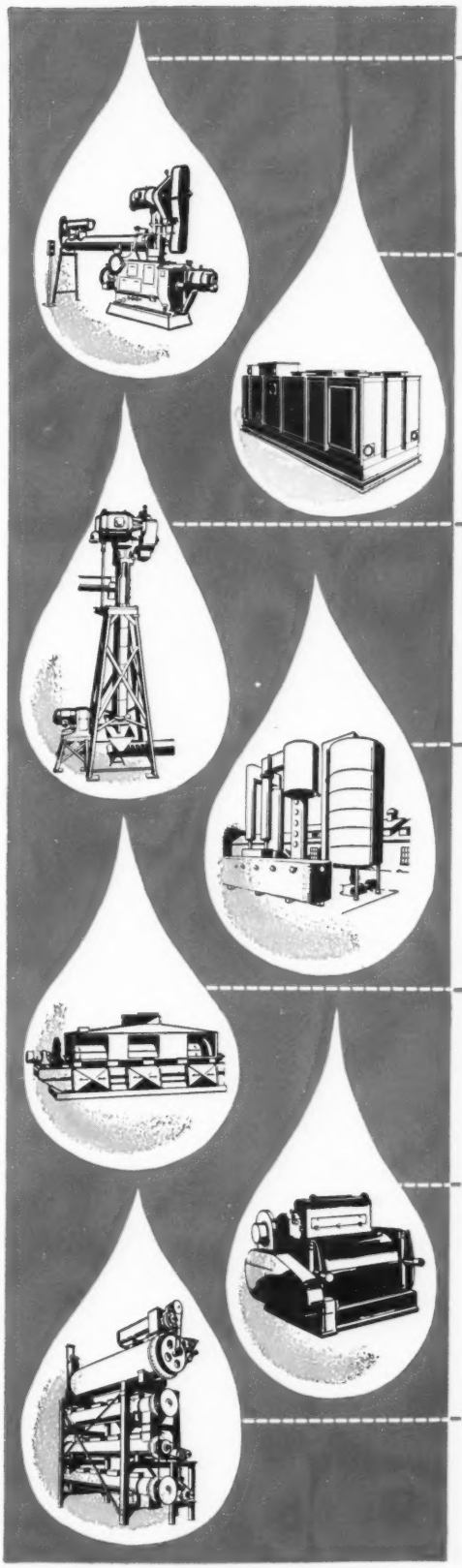

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